APPENDIX IX

AGRICULTURAL ECONOMY OF SEVIER RIVER BASIN, UTAH

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United States Department of Agriculture

Economic Research Service · Forest Service · Soil Conservation Service

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AGRICULTURAL ECONOMY

OF

SEVIER RIVER BASIN, UTAH

United States Department of Agriculture
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FORWORD

In 1960, the U. S. Department of Agriculture and the State of Utah began a cooperative study of the problems of land and water resource use and possibilities for development in the Sevier River Basin. The work has been carried out under the authority in Section 6, Public Law 566, as amended. Three services (Economic Research Service, Forest Service, and Soil Conservation Service) within the Department of Agriculture have participated actively in the study. General coordination between State and Federal agencies is being provided by the Utah State Engineer.

The primary purpose of the report is to make available to everyone concerned with the study the economic aspects of the total investigation. A separate report entitled, "Labor and Machinery Inputs and Practices, and Irrigation Water Use and Practices for Crop Production, Sevier River Basin, Utah", has been published which presents detailed data on inputs, outputs, and practices for field crops.

General guidance for the Sevier River Basin Investigation has been provided by the U. S. Department of Agriculture Field Advisory Committee. Dr. Clyde E. Stewart and Ray S. Lanier, ERS representatives has supervised the economic aspects of the USDA investigations. Dr. Jay C. Andersen, ERS, and Dr. Paul W. Barkley, formerly with ERS, have provided guidance and assistance during the study. Glenn E. Warnick, ERS, provided assistance in summarizing the results of the farm survey.

The author wishes to acknowledge the help received from the Agricultural Stabilization and Conservation Service, Bureau of Land Management, Forest Service, and Soil Conservation Service in providing and helping compile data used in this report. A special thanks is due to the many farmers in the area who willingly provided information about their farming operations.

SUMMARY

A need exists among technicians concerned with the Sevier River Basin, for information describing the areas agricultural resources. This report was prepared in response to that need. Data were collected from available secondary sources and a survey of farm operators in the area.

In 1960 the area population was 39,094, which is considerably less than the 1920 population of 55,854. Total employment in 1960 was 12,553, of which 3,571 were employed in agriculture.

During the last 15 years, crop production has been relatively stable, while livestock numbers increased. Agricultural production of the area represents about 25 percent of Utah's total agricultural production. Value of farm products sold was $30.5 million in 1954 and $34.5 million in 1964.

In 1963, a stratified random survey of farm operators was completed for crop year 1962. Farms were stratified by economic area, size and type. Presurvey data indicated there were 317,492 acres of cropland and 731,000 acres of noncropland for a total of 1,048,493 acres of land operated by 3,052 farmers. Operators, with base property in the basin, grazed 272,778 head of livestock on public lands administered by BLM and national forest lands, utilizing 474,882 animal unit months of feed. In the survey a detailed interview schedule was obtained from 317 farmers who operated 174,024 acres of land.

Survey farms averaged 830 acres in economic area I, 246 acres in economic area II, 621 acres in economic area III, and 689 acres in economic area IV, with an average of 550 acres per farm for the basin. The irrigated land per farm varied from a high of 171 acres in economic area IV to a low of 115 acres in economic area I. The average for the basin was 132 acres per farm. The proportion of irrigated cropland to total irrigated land varied from 44 percent in economic area I to 67 percent in economic area IV. Comparable figures for economic areas II and III were 65 percent and 52 percent, respectively. The relationship of irrigated land to land in farms also varied considerably by type of farm.

Alfalfa is the leading crop produced in the basin. Alfalfa was produced on 51 percent of the crop acreage, and varied from 68 percent in economic area IV to 40 percent in economic area III. Pasture was produced on 26 percent of the area, and varied from 38 percent in economic area III to 14 percent in economic area IV. Barley was next in order of importance, covering 13 percent of the crop area.

The average value per acre of crops produced in the basin was $56.71 in 1962. Comparable figures by economic areas were area I, $39.34; area II, $73.18; area III, $40.78; and area IV, $72.31. Farmers in economic areas II and IV used more commercial fertilizer than in the other two areas.

AGRICULTURAL ECONOMY OF THE SEVIER RIVER BASIN, UTAH

by
David L. Wilson
Agricultural Economist 1/

INTRODUCTION

The purpose of the economics portion of the Sevier River Basin study is to appraise present and potential agricultural uses of water and related land resources, and to identify profit-maximizing farm organizations under various distributions of resources among farms and areas. A later publication will report on the analytical aspects and results of the study.

A need exists among technicians working on the over-all study of the Sevier River Basin for data describing the area's agriculture. This report was prepared in response to this need. The report describes agriculture as it exists today with supporting data on past trends. Particular emphasis was placed on the use of water and related land resources. A separate report too detailed to be included in this report has been published presenting crop production practices and inputs. 2/

This report is presented in two major sections which include; (1) the resources and trends in their use, and (2) the characteristics and use of agriculture resources by economic areas. Data for the first section came primarily from the Census of Agriculture and the Census of Population. A farm management survey provided data for the second section. Data from the census were compiled by representative counties. Farmers interviews were limited to the study area, which is a considerably smaller area than the six-county area used to represent the basin for compiling census data. However, the major portion of the irrigated agriculture in the six-county area is within the study area. Survey data were collected and presented in the report by economic areas that reflect differences in climate and general agricultural conditions.

1/ Natural Resource Economics Division, Economic Research Service, U.S. Department of Agriculture.

2/ Labor and Machinery Inputs and Practices and Irrigation Water Use and Practices for Crop Production, Sevier River Basin, Utah.

RESOURCES AND CHANGES IN THEIR USE

Physical Resources

Study Area

The Sevier River Basin includes 5,250,000 acres or 8,203 square miles. The Sevier River drainage includes parts of eight counties--Kane, Iron, Garfield, Piute, Sevier, Sanpete, Juab, and Millard. Proportions of counties in the drainage vary from the major parts of Piute, Sevier, and Sanpete Counties to only small fractions of Kane and Iron Counties. The Tropic area of Garfield County, which is in the Colorado River Basin was included because water originating in the basin is diverted to this area for irrigation purposes.

For purposes of compiling census data used in portions of this report, representative counties were selected to represent the study area as nearly as possible. The representative area includes Garfield, Piute, Sevier, Sanpete, Juab and Millard Counties. This six-county area includes a land area of about 12.5 million acres. Variations between the study area and the representative counties are shown on the map on page 27.

Geographic and Topographic Features

The Sevier River Basin area is approximately 165 miles long north and south and 85 miles wide east and west. The area is characterized by high plateaus, narrow mountain valleys, and broad desert areas. Altitudes vary from 4,500 feet above sea level on the desert floor to over 12,000 feet in the Tusher Mountains. Topographic features include table-topped mountains, lofty peaks, fertile valleys, steep cliffs and terraces and dry desert lands.

In the upper portion of the Sevier River drainage, the river acts as a natural drainage system for all of the lands. Both the surface and underlying stratas in this area slope toward the Sevier River channel. This situation allows all water diverted for irrigation and not consumed by plants or lost to evaporation to return to the river. Consequently, the water from the river is rediverted and used for irrigation several times before reaching the lower part of the basin.

In the lower or desert area of the basin, the river does not act as a natural drainage system. The river channel in this area frequently is higher than the irrigated lands. This situation was caused by flooding of the river and the depositing of coarser materials near the river banks. The result is that lands generally slope away from the river channel. Lands therefore are drained artificially in this area.

The basin is used largely for agricultural purposes. Farms are located in the valleys; while the high country furnishes grazing for livestock and big game animals, recreation and timber.

Land

There are about 12.5 million acres in the six-county area. The Federal Government owns 81 percent and the State 6 percent of the total area (table 1). Indian land, urban areas, and water surface areas account for .5 percent of the land area. This leaves only 12.5 percent of the area to private ownership. Not all the land available for private uses is used for agricultural purposes. However, some lands owned by the Federal and State Government are used by individuals for agricultural purposes.

Table 1.- Land ownership in six-county area and State of Utah, 1959

Item	Six-county area	State	Portion area is of State
	1,000 acres	1,000 acres	Percent
Land area	12,518	52,697	23.8
Federal land	10,160	35,404	28.7
State land	751	3,015	24.9
Indian land	39	2,212	1.8
Urban land	23	260	8.8
Water surface	5	137	3.6
Other	1,540	11,669	13.2

Utah Conservation Needs Inventory Report, Utah State Conservation Needs Committee, October 1962.

Figures compiled by the Utah State Conservation Needs Committee indicate that there are 572,000 acres of cropland in the six-county area (table 2). This figure represents the 4.6 percent area in the basin which is used intensively for agricultural purposes. Of this total cropland acreage, 186,000 acres are nonirrigated and 336,000 acres are irrigated.

Water

At an early date it was recognized that the water supplies were not sufficient to irrigate all of the fertile lands within the area. In 1886 the first water rights litigation began. Prior to 1936 more than 45 court decrees defining water rights had been recorded. In 1936 a court decree was rendered adjudicating all water rights on the Sevier River and its tributaries. Since this date, there have been numerous cases of litigation and court decrees on water rights.

Table 2.- Land use inventory for six-county area and State of Utah, 1959

Item	Six-county area	State	Portion area is of State
	1,000 acres	1,000 acres	Percent
Cropland	572	2,219	25.8
Irrigated rotation	293	1,007	29.1
Irrigated nonrotation	93	429	21.7
Nonirrigated	186	783	23.8
Pasture and range	1,185	9,173	12.9
Forest and woodland			
In farms	357	2,478	14.4
Other	96	815	11.8
Other			
In farms	110	1,995	5.5
Not in farms	11	216	5.1
Noninventory lands 1/	10,188	35,801	28.5
Total	12,518	52,697	23.8

1/ Includes Federal lands, urban and built-up areas, and water surface areas.

Utah Conservation Needs Inventory Report, Utah State Conservation Needs Committee, October 1962.

The water supply of the basin is characterized by wide fluctuations in total amount of water available for irrigation. Supplies not only vary considerably from year to year but also for longer periods of time. Wet and dry periods are apparent from longtime water runoff records. These fluctuations create numerous problems for farmers in making longtime planning decisions.

Climate

The climate in the Sevier River Basin is varied. The Panguitch area, with a 98-day growing season, is limited to only a few crops when compared to Delta with a growing season of 165 days. The average frost dates and growing season for selected locations in the basin are shown in table 3.

Precipitation varies considerably over the basin. The amount of precipitation in agricultural areas varies from 6.49 inches at Deseret to 13.46 inches at Levan.

Table 3.- Average growing season and precipitation for selected locations, Sevier River Basin

Location	Elevation	Average freeze dates 1/		Frost-free period	Average annual precipitation
		Spring	Fall		
	Feet			Days	Inches
Delta	4,759	4/27	10/9	165	7.18
Deseret	4,540	5/4	9/30	149	6.49
Levan	5,300	5/3	10/12	162	13.46
Manti	5,585	5/7	10/12	158	12.06
Oak City	5,075	4/26	10/21	178	11.87
Panguitch	6,720	6/8	9/14	98	9.33
Richfield	5,300	5/8	10/3	148	8.19
Salina	5,200	5/8	10/2	147	9.76
Scipio	5,306	5/21	9/23	125	11.87
Tropic	6,296	5/10	10/8	151	11.37

1/ Last date in spring and first date in fall when temperatures drop to or below 28° fahrenheit.

Technical Publication No. 8, Consumptive Use and Water Requirements for Utah, Office of State Engineers, November 1962.

Human Resources

History and Settlement

The first white man to visit the Sevier River Basin was the Spanish traveler-explorer-cleric, Father Escalante. On his journeys through the southwest in 1776, Escalante and his men passed through the basin from south to north on their way to investigate stories of the existence of a "great salt lake". The return trip was made further west; possibly along the eastern edge of Millard and Beaver Counties.

In 1844, Fremont spent some time in the area. Brigham Young sent an exploring party into the area from Salt Lake City in 1849 to determine if the Sevier Basin could support a group of settlers.

Following the pattern of settlement in most of Utah, groups to settle whole communities and cultivate the soil were sent from Salt Lake City and other established areas into the Sevier River Basin. The groups included men familiar with farming and also men acquainted with blacksmithing, tanning, lumbering and other necessary trades.

The first community to be developed was Manti in the fall of 1849. Sanpete County was settled quickly. By 1850 the U. S. Census reported 365 persons in the county. Fillmore (Millard County) and Nephi (Juab County) were settled in 1851 and have been continuously occupied since that time. In 1864, Richfield (Sevier County) and Panguitch (Garfield County) were settled. Both of these towns had to be abandoned in 1867.

Richfield was vacated because of frequent Indian raids and Panguitch because of the extremely severe winters of 1864 and 1865. Both towns were successfully resettled in the early 1870's.

The settlers of the Sevier River Basin made a mistake common to nearly all settlers in the Western States. They attempted to grow crops which were ideal for the Midwestern States but which could not survive in the West. Crop failure was commonplace in the early years. This problem was overcome and some permanence was reached in the new settlements when livestock was introduced into the area. In later years, alfalfa and sugar beets became important crops.

Irrigation was as important to the settlers as it is today. In 1864, the same year as settlement, the Smithfield Canal was constructed in Garfield County. The following year, 1865, water was diverted from the river to irrigated small areas near Richfield. Ten years later, at least nine canals were providing water for crops in various parts of the Sevier Basin. Efforts to store water were accomplished on a small scale in the early years and in 1886 the Gunnison Bend Reservoir with a capacity of 4,550 acre-feet of water was put into operation.

Settlement of some portions of the Sevier River Basin had to wait until irrigation water was available. The town of Delta provides an example of this. In 1900, the Delta area was desert. Once irrigation water became available, prosperous farms developed.

While some portions of the basin suffered an extreme lack of moisture, other parts required drainage to make them suitable for crop production. In 1910 the Millard County Chronicle carried an article indicating that drainage practices could provide increased yields. By 1918, three drainage districts were draining 70,000 acres of land in Millard County. In Sevier County, an early cooperative extension agent conducted a survey and reported that 30,000 acres of land in Sevier County could benefit from drainage. By 1921 (eight years after the announcement), seven drainage districts were draining 37,500 acres of land.

Population

During the last two decades Utah has experienced a rapid growth in population. Generally, population increases have accompanied industrial developments. According to the U. S. Census of Population 15 of the 29 counties in Utah reached their peak population in census year 1960, while the 14 remaining counties reached their population peaks prior to this date. Counties which depend primarily on agriculture have experienced a gradual decline in population. This is accounted for largely by low monetary returns to farming and by increased mechanization which has reduced the need for agricultural laborers.

The six counties encompassing the Sevier River Basin each have registered decreases in population since 1920 when the population of the basin was at an all-time high (table 4). In 1920, the population was 55,854, while in 1960 it numbered only 39,094. The largest decreases have occured since 1940. The population of the basin counties decreased six percent from 1920 to 1940; 10 percent from 1940 to 1950; and 18 percent from 1950 to 1960.

Table 4.- Population of the six-county area and State of Utah, 1870-1960

County and State	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960
					Number					
Garfield	NA	NA	2,457	3,400	3,660	4,768	4,642	5,253	4,151	3,577
Juab	2,034	3,474	5,582	10,082	10,702	9,871	8,605	7,392	5,981	4,597
Millard	2,753	3,727	4,033	5,678	6,118	9,659	9,945	9,613	9,387	7,866
Piute	82	1,651	2,842	1,954	1,734	2,770	1,956	2,203	1,911	1,436
Sanpete	6,786	11,557	13,146	16,313	16,704	17,505	16,022	16,063	13,891	11,053
Sevier	19	4,457	6,199	8,451	9,775	11,281	11,199	12,112	12,072	10,565
Six-county area	NA	NA	34,259	45,878	48,693	55,854	52,369	52,636	47,393	39,094
State of Utah	86,786	143,963	207,905	276,749	373,351	449,396	507,847	550,310	688,862	890,627
					Percent					
Portion area is of State	NA	NA	16.5	16.6	13.0	12.4	10.3	9.6	6.9	4.4

NA = Not available.

U. S. Census of Population.

From 1920 to 1940, Utah lacked employment opportunities in both agriculture and industry. During this period employment in the basic industries--agriculture, mining and manufacturing--remained about the same while population increased. Failure of industries to provide employment for the expanding population resulted in excess rural population, unemployment in cities and many families on relief rolls. About 1940, enlarged employment opportunities in manufacturing resulted in the migration of people from rural agricultural areas to the larger cities.

Patterns of population changes have not been the same in all counties. Population peaks were attained in widely separated time periods. Piute County registered its peak population in 1890 while Sevier County reached its peak in 1940. Garfield, Millard and Sanpete Counties attained their population peaks in 1920.

In 1900 the population of the area was 17 percent of the State total, while in 1960 the portion was 4 percent. Since 1920 the number of people in the basin has decreased by approximately 30 percent, while the State population has nearly doubled.

Richfield (1960 population 4,412) and Kingston (1960 population 143) are the only communities in the area that experienced population increases during both the forties and the fifties. Delta and Salina each had a net increase for the period between 1940 and 1960, but had more people in 1950 than in 1960. All other towns and cities decreased in population from 1940 to 1960 (table 5).

Population pyramids for the area and the State indicate basic differences between age and sex characteristics of the area and those of the State (figure 1). The following observations can be made: (1) persons between the ages of 20 and 40 make up 18.14 percent of the population in the area; the comparable figure for the State is 25.58 percent; and (2) the percentage of people 60 years of age and above is considerably larger in the basin (14.74) than in the State (9.75). Examination of the population pyramid reveals that younger men and women are leaving the area while older people remain.

Other population characteristics are shown in table 6. Some significant traits are: (1) the percentage of total population engaged in agriculture in the area was 5 times greater than for the State as a whole in 1960; (2) the proportion of the population in Millard, Piute and Sanpete Counties engaged in agriculture was much larger than the other counties of the basin; (3) the counties with a higher percentage of their population engaged in agriculture tend to have lower median family incomes; (4) the median family income for individual counties was lower than for the State; (5) the median education level for the area was approximately the same as the State level.

Table 5.- Population of selected incorporated and unincorporated places, Sevier River Basin, 1940-1960

Town and County	1940	1950	1960
	Number	Number	Number
Annabella, Sevier	321	263	177
Antimony, Garfield	245	187	161
Aurora, Sevier	607	614	465
Centerville, Sanpete	598	601	475
Circleville, Piute	683	693	478
Delta, Millard	1,304	1,703	1,576
Elsinore, Sevier	674	657	483
Ephraim, Sanpete	2,094	1,987	1,801
Fairview, Sanpete	1,314	974	655
Fayette, Sanpete	NA	200	161
Fountain Green, Sanpete	988	767	544
Glenwood, Sevier	385	338	277
Gunnison, Sanpete	1,115	1,144	1,059
Hatch, Garfield	294	244	198
Hinckley, Millard	637	589	397
Joseph, Sevier	297	208	117
Junction, Piute	393	285	219
Kingston, Piute	63	138	143
Koosharem, Sevier	375	300	140
Leamington, Millard	279	214	190
Levan, Juab	621	521	421
Lynndyl, Millard	NA	241	145
Manti, Sanpete	2,268	2,051	1,739
Marysvale, Piute	626	520	354
Mayfield, Sanpete	473	390	329
Meadow, Millard	422	378	244
Monroe, Sevier	1,292	1,214	955
Moroni, Sanpete	1,158	1,076	879
Mt. Pleasant, Sanpete	2,383	2,030	1,572
Nephi, Juab	2,835	2,990	2,566
Oak City, Millard	391	334	312
Panguitch, Garfield	1,979	1,501	1,435
Redmond, Sevier	641	600	413
Richfield, Sevier	3,584	4,212	4,412
Salina, Sevier	1,616	1,789	1,618
Scipio, Millard	595	491	328
Sigurd, Sevier	364	431	339
Spring City, Sanpete	839	703	463
Sterling, Sanpete	223	188	137
Wales, Sanpete	223	179	130

U. S. Census of Population

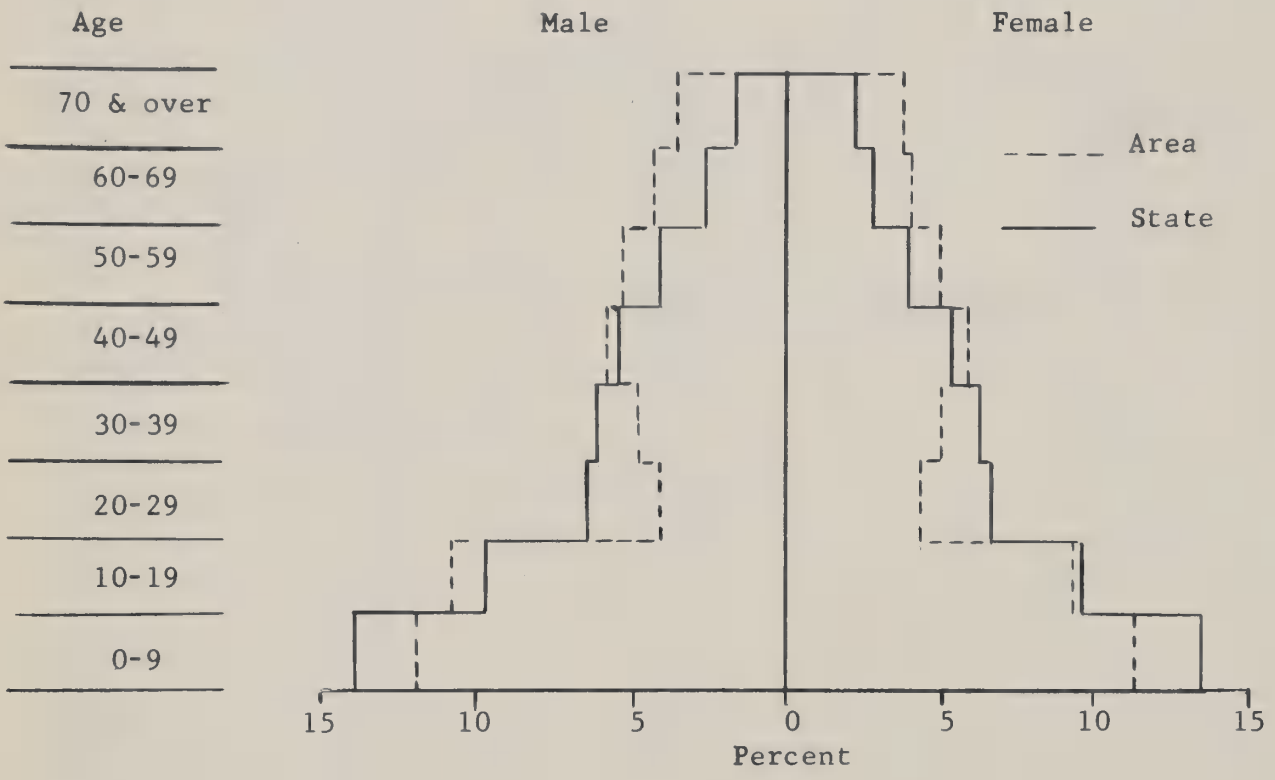

Figure 1.- Population distribution by sex and age, six-county area and State of Utah, 1960

U. S. Census of Population

Table 6.- Various attributes of the population, Sevier River Basin and State of Utah, 1960

Item	Unit	County						Basin	State
		Garfield	Juab	Millard	Piute	Sanpete	Sevier		
Employment	Number	1,185	1,419	2,537	478	3,372	3,562	12,553	302,147
Farm employment	Number	226	267	920	192	1,224	742	3,571	17,455
Portion engaged in farming	Percent	19.07	18.81	36.26	40.16	36.29	20.83	28.44	5.77
Median family income	Dollars	4,303	4,116	3,962	4,125	3,775	4,502	NA	5,899
Median education levels of:									
Adult males	Years	11.7	11.5	12.0	12.2	11.7	12.1	NA	12.2
Adult females	Years	12.2	11.9	12.2	12.1	11.8	12.1	NA	12.2
Dependency ratio 1/	Number	1.06	1.11	1.25	1.08	1.09	1.12	1.13	0.98

1/ A dependency ratio of 1:1 means that there is one independent (18-64 years) for each dependent. (Persons below 18 or above 64 are considered to be dependent.) A ratio greater than one means that each dependent must support himself and more than one other person.

U. S. Census of Population

Employment

In 1960, the labor force in the area totaled 12,553, or 28 percent of the total population. A comparable figure for the State was 34 percent. Employment figures indicate that agriculture was the major industry in the basin, followed by the trade and service industries.

Agriculture is the major industry in only three of the six counties. In Garfield County more people work in the service industry than agriculture. The trade industry is the largest employer in Juab and Sevier Counties. The figures shown in table 7 classify employment into groups on the basis of hours worked in an industry. Persons employed in more than one industry were included in the group in which they worked the most hours. This type of classification had a tendency to underestimate the number of persons engaged in agriculture. The 1959 census indicated that about 15 percent of the farmers in the area worked more than 100 days off their farms. However, the percentage of the farmers working off their farms has been decreasing over the years.

Table 8 shows employment in agriculture by categories for census years 1954 and 1959 in the basin counties. Figures indicate that employment in agriculture in the area is decreasing at a rapid rate in all categories. Employment in agriculture compared to total employment is decreasing at a more rapid rate within the area than the State. From 1954 to 1959 employment in agriculture decreased from 8,495 to 4,799 or about a 56 percent reduction. The number of seasonal workers hired decreased from 1,600 to 400 or a 75 percent reduction. No forces are in sight which will reverse the trends in agricultural employment so that it is expected that agricultural employment will continue to decrease in future years.

Table 7.- Persons employed by industries in six-county area and State of Utah, 1960 1/

Industry	County							State
	Garfield	Juab	Millard	Piute	Sanpete	Sevier	Basin	
	Number							
Agriculture	226	267	920	192	1,224	742	3,571	17,455
Forestry and fisheries	16	5	4	9	12	46	92	762
Mining	61	81	24	54	20	64	304	13,202
Construction	102	52	120	20	203	248	745	20,982
Manufacturing	182	232	77	8	308	511	1,318	48,408
Transportation and utilities	17	89	241	16	161	227	747	24,028
Trade industry	224	339	541	65	545	842	2,556	71,935
Service industry	346	330	568	112	809	831	2,996	97,284
Not reporting	11	24	42	6	90	51	224	8,091
Total	1,185	1,419	2,537	478	3,372	3,562	12,553	302,147

1/ Data refer to employment status as of the first part of April. A person working at more than one job was placed in the group in which he worked the most hours.

U. S. Census of Population.

Table 8.- Agriculture employment in six-county area and State of Utah, 1954 and 1959 1/

Item	1954			1959		
	Six-county area	State	Area as portion of State	Six-county area	State	Area as portion of State
	Number	Number	Percent	Number	Number	Percent
Unpaid family workers	2,303	13,186	17.5	1,054	8,066	13.1
Hired workers						
Regular	563	3,757	15.0	526	2,903	18.1
Seasonal	1,600	10,000	16.0	400	2,740	14.6
Operators working on farms						
Under 15 hours per week	827	5,010	16.5	817	4,344	18.8
15 or more hours per week	3,202	15,251	21.0	2,002	10,858	18.4
Total	8,495	47,204	18.0	4,799	28,911	16.6

1/ Employment on dates of census (September 26 to October 2, 1954 and November 15 to 21, 1959).

U. S. Census of Agriculture.

Trends in Agriculture

Land in Farms and Harvested Acreage

Of the 12.5 million acres of land in the six-county area, more than 2 million acres were in farms in 1964 (table 9). Acreage in farms has more than doubled in 40 years.

Table 9.- Total land in farms and cropland harvested in six-county area, 1924-1964

Year	Land in farms	Harvested acreage
	1,000 acres	1,000 acres
1924	1,003	216
1929	1,168	249
1934	1,098	210
1939	1,177	228
1944	1,706	266
1949	1,619	247
1954	1,896	291
1959	2,032	220
1964	2,098	213

U. S. Census of Agriculture.

In 1964, crops were harvested on 213,000 acres of land. Acreages of cropland planted and cropland harvested vary from year to year depending on irrigation water supplies, government programs, and market conditions. Water supply conditions are probably the dominant factor influencing the acreage of crops harvested in any given year. For example, the acreage on which crops were harvested in 1929 has only been exceeded by census years 1944 and 1954. In recent census years, harvested acreage was the lowest in 1934 and attained a peak in 1954.

Crop Yields and Production

Total crop production in the area over the last 20 years has been relatively stable. Generally, the acreage of major crops has decreased and the yields per acre increased with total production remaining about the same (tables 10 and 11). Variations in production and acreage are the result of fluctuations in the availability of irrigation water and other climatic factors.

Table 10.- Acreages harvested of major crops in six-county area, 1944-1964

Crop	Acres harvested				
	1944	1949	1954	1959	1964
All hay	156,795	123,296	136,718	129,365	140,908
Wheat	59,737	79,729	62,106	30,270	25,702
Barley	27,962	28,506	28,103	30,609	19,316
Oats	10,931	9,931	6,840	3,522	3,515
Alfalfa seed	19,218	30,594	32,601	26,252	35,169
Corn for silage	-------	3,938	6,316	7,242	4,542
Sugar beets	5,670	6,403	7,309	4,600	2,319
Potatoes	5,036	4,199	2,536	1,709	971

U. S. Census of Agriculture.

Table 11.- Average yields of major crops grown in six-county area, 1944-1959

Crop	Unit	Yield per acre				
		1944	1949	1954	1959	1964
All hay	Ton	1.8	2.0	2.2	2.3	2.6
Wheat	Bushels	20	18	17	17	22
Barley	Bushels	58	62	66	65	56
Oats	Bushels	46	44	44	46	50
Alfalfa seed	Pounds	55	231	232	252	149
Corn for silage	Tons	----	12	13	15	15
Sugar beets	Tons	11.3	15.8	15.2	14.0	13.9
Potatoes	Cwt.	81	128	135	156	99

U. S. Census of Agriculture.

Hay production has been the most stable crop. Total production varied from 251,268 tons in 1949 to 366,361 tons in 1964. Consistent increases in yield per acre have been evident. The average yield per acre increased by 44 percent from 1944 to 1964. Acreage of hay varied from 156,795 acres in 1944 to 123,296 acres in 1959. It is interesting to note that the average yield in the basin has increased at a faster rate than the State average.

Alfalfa is the most important crop in the basin (table 12). In 1954, 42 percent of the total cropland harvested was in alfalfa and 56 percent in 1964. In addition to feed, alfalfa is also important as a cash crop. In 1964, 22 percent of around 70,000 tons were sold by farmers.

Table 12.- Alfalfa acreage, production and sales in six-county area, 1954-1964

Item	Unit	Basin		
		1954	1959	1964
Alfalfa acreage	Acre	112,457	109,525	119,080
Alfalfa as portion of cropland harvested	Percent	42.1	49.7	56.0
Alfalfa production	Tons	266,661	259,267	317,598
Portion of crop sold	Percent	15.3	14.8	22.1

U. S. Census of Agriculture.

Livestock Production

The six counties produce about 25 percent of the State's production of livestock and livestock products (tables 13-14). This relationship has remained about the same for the last 20 years. Some variations or fluctuations within livestock groups have occured, but the total livestock relationship has remained about the same. In 1959, 22.4 percent of cattle and calves, 13.3 percent of the dairy cows, 25.2 percent of the sheep and lambs, 27.7 percent of the hogs and pigs and 40.4 percent of the turkeys were located in basin counties as compared to the State.

Table 13.- Livestock on farms in the six-county area, 1944-1964

Type of livestock	Year				
	1944	1949	1954	1959	1964
			Number		
Cattle & calves	132,905	126,349	173,856	160,476	171,986
Dairy cows	14,678	14,357	14,207	12,706	10,285
Sheep and lambs	458,469	237,396	371,502	324,885	304,540
Hogs	22,324	18,055	12,927	18,286	9,066
Turkeys	713,216	922,351	1,169,160	980,471	1,666,076

U. S. Census of Agriculture.

Table 14.- Amount of livestock and livestock products sold from farms in six-county area, 1944-1964

Farm products	Unit	Year 1944	1949	1954	1959	1964
Cattle and calves sold alive	Number	49,568	62,152	75,365	90,327	90,101
Butterfat sold	Pounds	433,359	182,547	88,357	53,642	27,394
Whole milk sold	1,000 gals.	6,108	5,959	8,993	9,473	9,371
Sheep and lambs sold alive	Number	263,239	152,254	220,418	237,509	206,934
Hogs and pigs sold alive	Number	51,311	25,586	12,788	23,884	13,814
Wool shorn	1,000 lbs.	3,379	1,906	2,455	2,310	2,084

U. S. Census of Agriculture.

The number of cattle and calves sold has consistently increased from 36,397 in 1939 to 90,101 in 1964. Butterfat sold has consistently decreased from 433,359 pounds in 1944 to 27,394 pounds in 1964. All other livestock and livestock products sales have varied and have not established a consistent trend over the last 20 years.

Value of Farm Products

In 1954, the total value of farm products sold in the six counties was 30.5 million dollars (table 15). This figure increased to 34.5 million dollars in 1964. However, the increase registered by the basin counties did not keep pace with increases in the value of farm products registered in the State. The basin counties increased the value of farm products sales by 10.9 percent from 1954 to 1959, while the State increase was 26.7 percent for the same period. In 1954, the basin production accounted for 24.1 percent of the State's agricultural production and in 1959 this figure was 20.7 percent of the State's production.

Table 15.- Value of farm products sold by source, six-county area, 1954-1964

Products sold	Year		
	1954	1959	1964
	- - - - -	1,000 dollars	- - - -
Field crops	7,508	5,159	4,776
Other crops	146	61	58
Total crops	7,654	5,220	4,834
Dairy products	2,395	2,858	3,206
Poultry and poultry products	6,026	4,794	8,834
Livestock	14,383	20,030	17,580
Total livestock and livestock products	22,804	27,682	29,622
Total value of sales	30,458	32,902	34,465

U. S. Census of Agriculture.

Farm Numbers

Farm numbers reached a peak in 1935 when 5,353 farms were reported in the area. Since that time, except for a brief period following World War II, the general pattern has been for farm numbers to decline. There was a large reduction in numbers from 1935 to 1950. From 1940 to 1954 numbers remained about constant but since 1954 there has been a rapid reduction in farm numbers. The Census of Agriculture reported farm numbers in the basin from 1925 to 1964 were as follows:

Year	Number	Year	Number
1925	5,225	1945	4,537
1930	5,222	1949	4,558
1935	5,353	1954	4,248
1940	4,378	1959	3,268
		1964	2,825

Size of Farms

The trend in the area has been for the average size of farm to increase (table 16). Except for two periods (1930-35 and 1945-49) the average size has continually increased. The average size of farm increased from 183 acres in 1920 to 269 acres in 1940 and 743 acres in 1964.

Table 16.- All land per farm, six-county area, 1920-1964

Year	Acres	Year	Acres
1920	183	1945	376
1925	192	1950	355
1930	224	1955	447
1935	205	1959	623
1940	269	1964	743

U. S. Census of Agriculture.

Table 17 shows the percentage distribution of farms by acreage-size groups for census years 1954 to 1964. These data point out the percentage increase in the groups above 100 acres and the corresponding decrease in the percentage of farms in groups below 100 acres.

Table 17.- Percentage of farms by acreage-size groups in six-county area, 1954-1964

Group	Unit	Percent of farms		
		1954	1959	1964
Under 10	Acre	14.5	7.0	5.6
10-49	Acre	16.7	16.3	15.1
50-99	Acre	17.9	16.1	15.6
100-179	Acre	17.3	18.5	18.5
180-259	Acre	8.0	9.7	9.6
260-499	Acre	10.5	11.9	13.0
500 and over	Acre	15.1	20.5	22.6

Types of Farms

The type of agriculture in any area is conditioned by physical and economic characteristics of that area. Many variations in physical conditions and enterprises exist within the area. In most cases cropping activity is limited by the supply of irrigation water. Relatively few crops are grown and those few are produced under a wide variety of conditions. Most cropland is used to grow alfalfa hay, feed grains and pasture for feeding farm livestock. In 1959, 79 percent of the harvested cropland was alfalfa and small grains. Some cash crops such as sugar beets, potatoes and alfalfa seed are important in some parts of the basin.

In the Sevier River Basin there are three general types of farms; (1) irrigated crop farms, (2) range livestock farms, and (3) dryland crop farms. Most farms are of the first type. With the exception of some relatively small dryland farming areas, range livestock operations utilize practically all the unirrigated portions of the Sevier River Basin. Some of these operations are specialized cattle ranches, some are specialized sheep operations, and some are a combination of both. Although many ranches have cropland to produce forage for winter feeding of livestock, these operations rely heavily on the use of publicly-owned and administered grazing land.

Dryland farming is restricted to parts of Millard, Juab and Sanpete Counties where the combinations of soils, topography and precipitation are suitable.

Table 18 shows the percentage of farms in the area by major farm enterprises for census years 1954, 1959, and 1964. "Other livestock" was the only category showing an increase in percentage of total farms from 1954 to 1959. This can be partially explained by consolidation of farm operations but many operators have undoubtedly changed their major farm enterprise to "other livestock," possibly from sheep, farm beef, or fattening lambs or beef.

Table 18.- Type of farms by major farm enterprises, six-county area, 1954-1964

Type of farm	Unit	Portion of farms		
		1954	1959	1964
Field crops	Percent	8.5	3.6	2.2
Poultry	Percent	8.0	5.1	5.0
Dairy	Percent	11.1	11.6	11.4
Other livestock	Percent	28.9	40.4	36.2
General	Percent	19.3	10.1	14.6
Unclassified	Percent	24.2	29.2	30.6

U. S. Census of Agriculture.

Value of Land in Farms

From 1945 to 1964 the weighted average 1/ value of land in farms in the area increased from $8,647 to $41,297. This is 478 percent increase in the value of land in the average farm (table 19). Not all this increase is due to appreciation in land. Part of the increase is due to the increase in number of acres in farms between periods. Per acre value of land in farms and appreciation in land values are shown in table 20. Generally land values were the lowest in 1940 and have increased each period except the 1949-54 period since that time. Sanpete and Sevier Counties were the only counties in which land values decreased from 1949 to 1959. The value of land was the highest in Piute County in 1959.

Table 19.- Total value of land in farms, six-county area, 1935-1959

County	1940	1945	1949	1954	1959	1964
			Dollars per farm			
Garfield	4,253	7,600	15,714	16,028	30,240	38,817
Juab	5,677	7,183	17,558	19,627	27,156	36,622
Millard	5,162	9,946	20,748	24,555	34,814	43,636
Piute	6,185	9,910	22,212	24,464	38,137	50,356
Sanpete	4,456	7,356	15,509	17,955	25,234	39,328
Sevier	6,176	10,155	19,123	21,294	33,480	42,128
Weighted average	5,164	8,648	18,024	20,673	30,776	41,297

U. S. Census of Agriculture.

Table 20.- Per acre value of land in farms, six-county area, 1935-1959

County	1940	1945	1949	1954	1959	1964
			Dollars per acre			
Garfield	15.40	19.42	49.05	28.09	42.64	47.31
Juab	12.40	15.88	31.70	25.18	41.09	35.64
Millard	17.34	22.26	48.82	54.72	56.63	53.49
Piute	27.98	32.38	87.03	86.50	106.29	88.87
Sanpete	16.03	19.42	41.79	34.52	40.86	46.73
Sevier	39.83	37.70	113.92	95.20	96.51	105.77

U. S. Census of Agriculture.

1/ Using farm numbers as weights.

Use of Public (Federal) Grazing Lands

Public Lands (Administered by Bureau of Land Management)

A large percentage of the total acreage within the Sevier River Basin is administered by the Bureau of Land Management. Public lands administered by BLM in grazing districts 3, 5, and 10 provided grazing for livestock operators within the basin. Cattle and sheep operators in the basin rely on federally administered range for a large portion of their annual forage requirements. Livestock using BLM lands obtain about 40 percent of their annual feed requirements from grazing these lands. In 1961, 47,049 cattle and 317,988 sheep utilized 563,915 AUMs 1/ of forage on BLM lands in or adjacent to the basin (table 21).

In the last 15 years there has been a significant reduction in the number of livestock and the animal unit months of grazing on BLM lands. The number of both sheep and cattle using these lands has decreased; sheep numbers by 29 percent and cattle numbers by 7 percent.

National Forest Lands

Parts of four national forests--Uinta, Fishlake, Manti-LaSal and Dixie--lie within the Sevier River Basin. These lands provide an important source of summer grazing for cattle and sheep within the Sevier River Basin.

In 1960, 46,218 cattle and 166,275 sheep utilized 301,244 AUMs of forage on national forest lands within or adjacent to the Sevier River Basin (table 22). Livestock grazing on national forest lands obtain approximately 30 percent of their total annual forage requirements from this source.

The number of livestock grazing on forest lands declined during the period from 1945 to 1960, but the major proportion of the reduction was absorbed by sheep. Cattle numbers were reduced by 7 percent, while sheep were reduced by 22 percent from 1945 to 1960.

1/ Animal unit months.

Table 21.- Livestock use on public lands administered by BLM in selected grazing districts within or adjacent to the Sevier River Basin, 1945-1961 1/

Year	Cattle and horses			Sheep and goats			Total livestock		Total forage requirement	Percent of total forage requirement provided
	Number	AUMs	Percent of total AUMs	Number	AUMs	Percent of total AUMs	Number	AUMs	AUMs	
1945	42,498	234,511	34	448,394	464,245	66	490,892	698,756	1,586,122	44
1946	50,772	278,725	39	458,324	440,480	61	509,096	719,205	1,709,242	42
1947	65,384	299,238	41	430,617	433,909	59	496,001	733,147	1,818,089	40
1948	51,845	312,387	42	408,196	431,343	58	460,041	743,730	1,601,810	46
1949	53,446	297,924	46	318,748	352,988	54	372,194	650,912	1,406,347	46
1950	56,353	315,755	49	301,176	328,853	51	357,429	644,608	1,399,058	46
1951	55,018	323,987	50	269,651	321,005	50	324,669	644,992	1,307,378	49
1952	57,713	320,462	51	292,350	309,068	49	350,063	629,530	1,394,196	45
1953	57,909	320,155	50	298,805	316,098	50	356,714	636,253	1,412,040	45
1954	54,311	299,888	50	293,576	295,844	50	347,887	595,732	1,356,314	44
1955	55,595	306,916	51	273,672	296,622	49	329,267	603,588	1,323,953	46
1956	51,615	274,628	48	278,578	297,347	52	330,193	571,975	1,287,967	44
1957	42,442	232,864	47	236,469	267,832	53	278,911	500,696	1,076,830	46
1958	48,268	255,333	50	242,289	255,885	50	290,557	511,218	1,160,710	44
1959	54,916	280,770	47	308,440	316,962	53	363,356	597,732	1,399,248	43
1960	50,259	226,689	43	314,412	306,222	57	364,671	532,911	1,357,697	39
1961	47,049	266,621	47	317,988	297,294	53	365,037	563,915	1,327,759	42
Ave.	52,670	285,109	46	323,040	337,153	54	375,710	622,262	1,407,336	44

1/ Includes Utah grazing districts 3, 5, and 10.

Annual statistical report, Bureau of Land Management, State of Utah.

Table 22.- Livestock use on national forest lands within or adjacent to the Sevier River Basin, 1945-1960 1/

Year	Cattle and horses: Number	Cattle and horses: AUMs	Cattle and horses: Percent of total AUMs	Sheep and goats: Number	Sheep and goats: AUMs	Sheep and goats: Percent of total AUMs	Total livestock: Number	Total livestock: AUMs	Total forage requirement AUMs	Percent of total forage requirement provided
1945	49,704	239,610	60	213,205	156,783	40	262,909	396,393	1,108,140	36
1946	59,963	225,063	60	203,629	149,827	40	263,592	374,890	1,208,266	31
1947	49,561	226,196	64	186,537	128,967	36	236,098	355,163	1,042,421	34
1948	48,610	222,797	64	184,545	125,788	36	233,155	348,585	1,026,228	34
1949	47,872	216,026	64	180,615	122,383	36	228,487	338,409	1,007,940	34
1950	48,012	215,031	64	178,455	120,503	36	226,467	335,534	1,004,436	33
1951	48,177	215,750	65	174,624	117,830	35	222,801	333,580	997,222	33
1952	48,666	213,673	65	175,655	116,609	35	224,321	330,282	1,005,564	33
1953	47,778	212,811	65	171,713	113,052	35	219,491	325,863	985,447	33
1954	48,069	207,458	65	171,996	112,721	35	220,065	320,179	989,618	32
1955	49,029	210,332	66	167,382	109,381	34	216,411	319,713	990,065	32
1956	50,140	206,760	66	168,403	107,351	34	218,543	314,111	1,005,847	31
1957	47,558	200,446	65	166,099	106,123	35	213,657	306,569	969,334	32
1958	47,433	198,966	65	170,017	105,554	35	217,450	304,520	977,237	31
1959	47,342	197,623	65	173,684	107,774	35	221,026	305,397	984,946	31
1960	46,218	194,865	65	166,275	106,379	35	212,493	301,244	953,676	32
Ave.	49,008	212,713	64	178,302	119,189	36	227,310	331,902	1,016,024	33

1/ Parts of four national forests--Uinta, Fishlake, Manti-LaSal and Dixie--lie partially within the Sevier River Basin. Grazing data from the Nephi districts of the Uinta National Forest, Manti division of the Manti-LaSal National Forest, Fishlake National Forest and the Panguitch, Powell and Circleville districts of the Dixie National Forest were included in tabulating grazing figures for the Sevier River Basin.

Compiled from data provided by the U. S. Forest Service.

DESCRIPTION OF FARMS STUDIED

Survey Procedures

Sources of Data

In recent years several economic studies have been made within the Sevier River Basin. These have been static in nature and generally analyzed the best use of given sets of resources in a small segment of the basin. The present program of investigations goes much further. An analysis of conditions in all major segments of the basin serves as a starting point for an analysis of resource uses within the basin. In this way, relative values of resources in various uses and in different parts of the basin can be estimated. Data will be used in later analysis to examine profit-maximizing farm organizations with present distribution of resources and also the effects of changes in distribution of resource use. In this way, the basin can be treated as a system or as a unit and the effects of various changes can be traced. Data from both published and unpublished sources is to be used in addition to the information from the farm survey.

An economic investigation of water and related land resources require detailed information regarding costs and returns to resources in alternative uses and inventories of resources available to farm operators. Much of the required data can be obtained from previously compiled sources and published reports. These sources will be utilized as fully as possible. However, secondary sources are inadequate to meet the objectives of this study. It was essential that additional information regarding basic features of agriculture in the entire basin be collected. The farm survey method was the means selected to obtain necessary data about agriculture in the basin.

A survey of a stratified random sample of farmers in the basin was completed in 1963. Farms were stratified with reference to economic area, farm size, and type of farming.

Economic Areas and Subbasins

The Sevier River Basin has been divided into four economic areas and six subbasins containing 40 watershed. The economic areas encompassed geographic areas of similar agricultural activity while the subbasins were selected on the basis of hydrology. The watersheds were selected primarily as individual problem areas or areas amendable to "improvement by single project-type programs of the U. S. Department of Agriculture." Figure 2 is a map of the basin showing the outlines of the subbasins and economic areas. The economic areas are designated by the use of Roman numerals, I-IV, while the subbasins are indicated by letters A through F.

Subbasin A is the drainage of the San Pitch River above Gunnison Reservoir. Subbasin B is all the drainage below the Sevier Bridge Reservoir. Subbasin C comprises the drainage of the Sevier River Between Sevier Bridge Reservoir and the USGS river gage near Sigurd. Subbasin D lies from this river gage

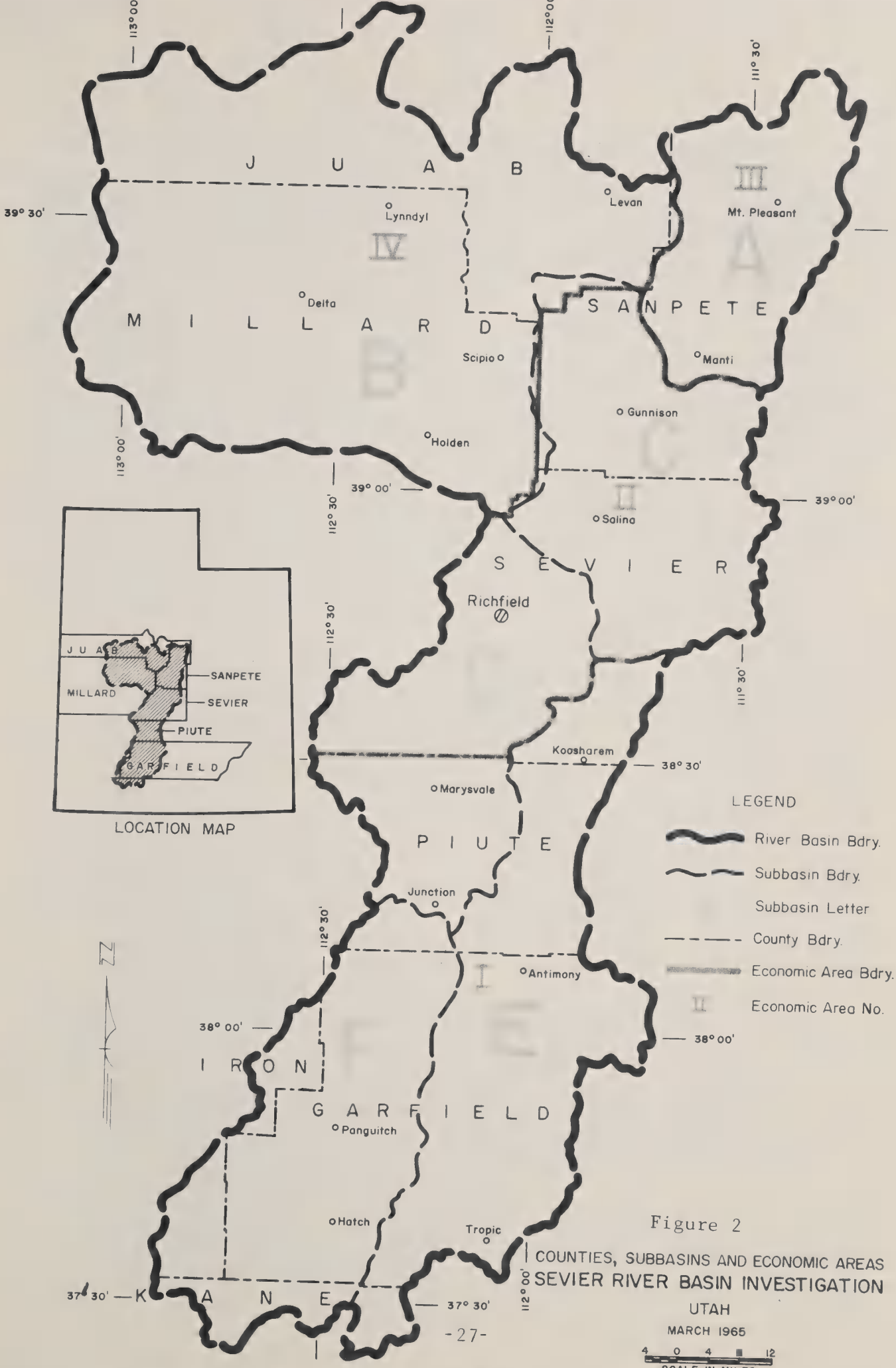

Figure 2

COUNTIES, SUBBASINS AND ECONOMIC AREAS
SEVIER RIVER BASIN INVESTIGATION
UTAH
MARCH 1965

U. S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE USDA-SCS-PORTLAND, OREG. 1965 M-4343

upstream to the USGS river gages on the East Fork and South Fork of the Sevier River at their confluence near Kingston. Subbasin E is the drainage of the East Fork of the Sevier River and including the portion of the Paria River drainage around Tropic which receives water diverted from the East Fork. Subbasin F is the drainage of the South Fork of the Sevier River above the river gage near Kingston.

Economic area I comprises all of subbasins E and F plus that part of subbasin D which is in Piute County. This includes all the basin area in Garfield and Piute Counties plus the Koosharem area of Sevier County. Agriculture in this area is oriented toward forage crops and livestock production. Some potatoes are also grown. The elevation is relatively high with valleys above 6,000 feet. The growing season is consequently short. Farmers depend primarily on direct flow water rights in the Sevier River and its tributaries to provide irrigation water supplies.

Economic area II includes all of subbasin C and all of subbasin D that lies in Sevier County. The economy of this area is dependent primarily on raising and feeding livestock with some cash crops. Sugar beets are the principal cash crop. Irrigation water supplies for this area come from direct flow of Sevier River, tributary flows and reservoir storage.

Economic area III has the same boundaries as subbasin A. The economy of this area is dependent on forage crops and livestock. Turkey and range livestock operations dominate the economy. Range livestock operators depend heavily on federal grazing land to provide feed for their livestock. The primary source of irrigation water is from mountain streams and springs. Some water is pumped from underground supplies.

Economic area IV is the same as subbasin B. The economy of this area is oriented toward raising and feeding livestock and cash crop farming. Farm income from these two sources are about equal. Alfalfa hay, alfalfa seed, and wheat are the principal cash crops. Most of the irrigation water comes from reservoir storage and underground supplies.

Survey Population Defined

A list of all farm operators in each economic area was compiled. The following information for each farm was collected; (1) name of operator and general location of farm, (2) total acres of farm, (3) cropland acres, (4) type of farm, and (5) holdings of public grazing permits. Major sources of information were State and county offices of the Agricultural Stabilization and Conservation Service, area and work unit offices of the Soil Conservation Service, district offices of the Forest Service and Bureau of Land Management and county agents.

Farms were classified into broad types based on the major crop or livestock enterprises, or into more detailed types. Farms with diversified livestock enterprises and cropping patterns were classed as general-type operations. These broad types and detailed types are listed in the following classification.

Beef	Sheep	Dairy	General	Others
Range beef	Range sheep	Grade A	General	Small farms
Range beef and range sheep	Range sheep and farm beef	Grade C	Dry crop	Institutional
Range beef and farm flock sheep	Farm flock sheep		Irrigated crop	Soil bank
Farm beef			Feeder	Idle
Farm beef and farm flock sheep				Unknown

The largest single farm type was small farms, which included any farm with less than 40 acres of irrigated cropland (table 23). Over one-third (36.2 percent) of all farms in the basin were in this category.

General farms include 30 percent of all farms, and beef production was the major enterprise (not including small farms) on 16 percent of all farms. Institutional farms and farms that were in the soil bank, idle or the status of the farm or owner was unknown were not included in the population to be sampled. There were 231 farms in this category. An operating unit was defined as all crop and livestock enterprises controlled by one farmer.

Small farms (less than 40 acres of irrigated cropland) and beef farms dominated the agricultural economy of 420 farms in area I. Beef operations made up 37 percent, and small farms 39 percent of all the farms in the area. Of the 157 beef farms, 115 had grazing rights in conjunction with their base property.

There were 1,067 farms in area II, of which small farms accounted for 44.6 percent, beef operations 14.5 percent, dairy farms 8.2 percent, and general farms 31.7 percent. The majority of feeder operations in the basin were located in this area.

Range sheep operations (base property and ranch headquarters) in the basin were concentrated (80 percent) in area III. Of the 829 farms in the area, small farms made up 42.2 percent, general farms 20.9 percent, dairy farms 8.3 percent, sheep operations 11.3 percent, and beef farms 10.6 percent. Only 27 percent of the beef operations in this area had grazing rights in addition to their farmlands. Turkey raising was important and accounted for a large part of the income from general-type farms.

Irrigated crop farms were the most important farm type in area IV. Alfalfa seed was the leading cash crop on these farms. Of the area's 736 farms, 35.1 percent were irrigated crop farms, 12.1 percent beef farms, 15.6 percent general livestock, 15.2 percent small farms, and 6 percent of the farms were in the soil bank.

Farm size in the basin varied from 538 acres per farm in area IV to 221 acres in area II (table 24). Cropland acreage ranged from 70 acres per farm in area II to 191 acres in area IV. Farm size, by type of operation

Table 23.- Classification of farms by farm type and economic area, Sevier River Basin, 1962

Farm type	Economic area I	II	III	IV	Basin total
	Number	Number	Number	Number	Number
Beef					
Range beef	85	112	23	88	308
Range beef and range sheep	4	6	2	-----	12
Range beef and farm flock sheep	26	1	-----	-----	27
Farm beef	32	34	62	1	129
Farm beef and farm flock sheep	10	2	1	-----	13
Beef total	157	155	88	89	489
Sheep					
Range sheep	5	13	72	-----	90
Range sheep and farm beef	-----	-----	2	1	3
Farm flock sheep	4	7	20	11	42
Sheep total	9	20	94	12	135
Dairy					
Grade A	2	36	38	1	77
Grade C	18	52	31	11	112
Dairy total	20	88	69	12	189
General					
General livestock	33	159	101	115	408
Feeder	1	42	-----	21	64
Dry crop	-----	3	16	16	35
Irrigated crop	20	62	56	259	397
General total	54	266	173	411	904
Other					
Small farm 1/	165	476	350	113	1,104
Institutional farm 2/	2	1	7	6	16
Soil bank 2/	3	4	13	44	64
Idle 2/	6	4	-----	8	18
Operator unknown 2/	4	53	35	41	133
Other total	180	538	405	212	1,335
Total all types	420	1,067	829	736	3,052

1/ Farms with less than 40 acres of irrigated cropland.
2/ These farms were not included in the farm survey sample.

Compiled with help of office managers, Agricultural Stabilization and Conservation Service, County Agents, and other agricultural technicians familiar with farmers and their farming operations.

Table 24.- Total land and cropland acreage per farm by type of farm and economic area, Sevier River Basin, 1962

Farm type	Area I		Area II		Area III		Area IV		Sevier Basin	
	Crop-land	Total	Crop-land	Total	Crop-land	Total	Crop-land	Total	Crop-land	Total
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Beef										
Range beef	146	640	151	672	138	617	347	1,174	205	802
Range beef and range sheep	181	1,020	200	2,310	121	5,026	-----	-----	180	2,333
Range beef and farm sheep	125	623	100	3,332	-----	-----	-----	-----	124	723
Farm beef	107	313	131	277	124	306	296	720	123	303
Farm beef and farm sheep	136	424	93	265	150	221	-----	-----	131	384
Feeder beef	91	140	117	193	-----	-----	366	514	198	297
All beef farms	134	564	141	561	128	493	350	1,044	179	647
Sheep										
Range sheep	107	2,560	192	625	185	1,405	0	792	180	1,350
Range sheep and farm beef	-----	-----	-----	-----	83	712	236	1,260	134	895
Farm flock sheep	105	347	74	182	76	178	112	155	88	189
All sheep farms	106	1,577	151	470	160	1,129	113	289	151	982
Dairy										
Grade A	121	330	119	255	124	257	114	120	122	256
Grade C	71	144	92	169	88	169	232	342	101	182
All dairy farm	76	162	103	204	108	215	222	323	109	213
General										
General	81	199	96	210	143	346	249	498	150	324
Dry crop	-----	-----	274	1,101	220	547	291	469	257	559
Irrigated crop	87	227	85	149	91	217	160	252	135	230
All general farms	83	210	96	205	133	323	192	333	147	289
Other										
Small farm	18	139	16	82	17	87	28	59	18	90
Institutional farm	181	313	88	113	54	560	65	76	76	320
Soil bank	485	1,828	310	1,064	151	463	280	459	265	562
Idle	104	395	146	217	-----	-----	194	334	153	328
Operator unknown	68	242	76	135	85	177	139	418	98	237
All other farms	32	180	25	96	28	115	109	222	40	133
Average of all types	81	358	70	221	82	322	191	538	104	344

Compiled from data provided by Agricultural Stabilization and Conservation Service.

in the basin, varied from 2,333 acres per farm for range sheep and range beef operations to 90 acres of land for small farms. Cropland per farm averaged 18 acres for small farms and 265 acres for farms in the soil bank. Irrigated acreage was not available for the presample data.

Total data collected as a basis for sampling indicated there were 1,048,493 acres of land in farms within the basin (table 25). Cropland acreage in the basin was 317,492. Land in farms by economic areas varied from 150,187 acres in area I to 395,763 acres in area IV. Cropland acreage in the basin included 33,073 in area I, 74,823 in area II, 68,393 in area III, and 140,403 in area IV. A considerable acreage of cropland in area IV was dry cropland, while the dry cropland acreage in the other areas was relatively minor.

Table 25.- Total land, cropland, and noncropland in farms by economic area, Sevier River Basin, 1962

Area	Cropland	Noncropland	Total
	Acres	Acres	Acres
Economic area I	33,873	116,314	150,187
Economic area II	74,823	160,464	235,287
Economic area III	68,393	198,863	267,256
Economic area IV	140,403	255,360	395,763
Sevier River Basin	317,492	731,001	1,048,493

Compiled from data provided by Agricultural Stabilization and Conservation Service.

A large proportion of the total acreage in the Sevier River Basin is administered by the Bureau of Land Management and U. S. Forest Service. Public lands administered by BLM in grazing districts 3, 5, 10 and four national forests--Uinta, Fishlake, Manti-LaSal and Dixie--provide grazing for livestock operations within the basin. Livestock using BLM lands obtain about 40 percent of their annual feed requirements from these lands. Those grazing on national forest lands obtain approximately 30 percent of their total annual forage requirements from this source (table 26). In 1962 there were 492 operations with cattle permits and 103 operations with sheep permits. Livestock grazing on national forest lands utilized 127,057 animal unit months of forage. Comparable figures for BLM lands were 313 cattle permits and 139 sheep permits with 347,825 AUMs of grazing. Livestock grazing on BLM lands in 1962 numbered 24,815 cattle and 167,733 sheep. In the same year, 21,411 cattle and 58,819 sheep utilized forage from national forest lands. These figures include only operations with base property within the basin. Operators with headquarters outside the basin also used a considerable amount of forage from these areas. However, only part of these public lands are actually within the basin.

Table 26.- Use of public grazing land by economic area, Sevier River Basin, 1962

Item	Unit	Economic area I	II	III	IV	Basin
National Forest Lands						
Operators with cattle permits	Number	137	150	122	93	492
Permitted cattle	Number	6,473	8,298	3,604	3,036	21,411
Authorized grazing	AUM	25,978	36,216	14,884	11,394	88,472
Average size of permit	Number	47.2	55.3	32.2	32.6	43.5
Average size permit	AUM	189.6	241.4	132.9	122.5	179.8
Operators with sheep permits	Number	14	25	63	1	103
Permitted sheep	Number	10,212	11,596	36,061	950	58,819
Authorized grazing	AUM	6,217	7,803	24,248	317	38,585
Average size permit	Number	729.4	463.8	572.4	950.0	571.1
Average size permit	AUM	444.1	312.1	384.9	317.0	374.6
Public lands administered by BLM						
Operators with cattle permits	Number	111	68	13	121	313
Permitted cattle	Number	11,660	4,460	635	8,060	24,815
Authorized grazing	AUM	51,429	23,717	5,473	47,580	128,199
Average size permit	Number	105.5	65.6	48.8	66.6	79.3
Average size permit	AUM	463.3	348.8	421.0	393.2	409.6
Operators with sheep permits	Number	17	35	85	2	139
Permitted sheep	Number	17,990	30,298	111,385	8,060	167,733
Authorized grazing	AUM	14,520	41,192	133,373	10,541	219,626
Average size permit	Number	1,058.2	857.1	1,310.4	4,030.0	1,206.7
Average size permit	AUM	2,030.6	1,176.9	1,569.1	5,270.5	1,580.0

Compiled from data provided by U. S. Forest Service and Bureau of Land Management.

Table 27.-Farmers interviewed by type and size of farm and economic area, Sevier River Basin, 1962

Type of farm	Economic area I	Economic area II	Economic area III	Economic area IV	Sevier River Basin
	Number	Number	Number	Number	
Beef feeder	---	14	---	6	20
Large	---	4	---	6	10
Small	---	10	---	---	10
Crop	---	9	7	17	33
Large	---	3	7	7	17
Small	---	6	---	10	16
Dairy	12	27	19	8	66
Large grade A	2	10	3	---	15
Small grade A	---	4	12	---	16
Grade B	---	13	---	---	13
Grade C	10	---	4	8	22
Farm beef	---	4	9	---	13
Farm flock sheep	---	6	---	3	9
General	13	8	14	10	45
Large	9	5	10	4	28
Small	4	3	4	6	17
Lamb feeder	---	7	---	---	7
Range beef	17	18	10	13	58
Large	8	4	4	5	21
Small	9	14	6	8	37
Range sheep	6	2	18	---	26
Large	6	2	7	---	15
Small	---	---	11	---	11
Small farm	7	8	15	10	40
Total	55	103	92	67	317

Survey Sample

The field survey was designed to obtain costs and returns data relating to agricultural enterprises, resource requirements of various agricultural enterprises, and an inventory of resources available to individual farmers. Estimates of fixed costs were also obtained. Physical data relating to irrigation water application and crop production response were also collected.

The population from which a sample was surveyed included 2,821 of the 3,052 farmers in the basin. Classes of farms not included in the population were institutional farms, idle farms, farms in soil bank, and farms about which no information could be obtained.

The number of farmers interviewed by type and size of farm and economic areas is shown in table 27. Farm schedules were obtained from 55 farmers in area I, 103 in area II, 92 in area III, and 67 in area IV, for a basin total of 317. The irrigated acreage and total land covered by the farm survey is shown in table 28. The farm survey included 10.4 percent of the farmers in the basin, 16.6 percent of the land in farms, and 13.9 percent of the cropland within the basin. The percentage of land in farms in the sample was 30.4 percent in area I, 10.8 percent in area II, 21.4 percent in area III, and 11.7 percent in area IV. The percentage of total land in farms varied by economic areas, because of type and size distribution of farm types within economic areas and for the basin.

Table 28.- Total land, irrigated land, and dryland in farm sample survey by economic area, Sevier River Basin, 1962

Area	Irrigated lands	Dryland	Total land	Percentage of total area
	Acres	Acres	Acres	Percent
Economic area I	6,193	39,513	45,706	30.4
Economic area II	12,040	13,270	25,310	10.8
Economic area III	11,568	45,535	57,103	21.4
Economic area IV	11,524	34,654	46,178	11.7
Sevier River Basin	41,325	132,972	174,297	16.6

SURVEY FINDINGS

General Information

General information about farm operators and their families are shown in table 29. Farmers averaged 53 years of age and in addition to working 2,601 hours per year on their farms, they also worked 90 days a year off the farm. The average farmer had a nonfarm income of $2,173 per year. Nonfarm income and work off the farm was the highest in area I.

Table 29.- General information about farmers and farm families by economic area, Sevier River Basin, 1962

Item	Unit	Economic areas I	II	III	IV	Basin
Operators interviewed	Number	55	103	92	67	317
Age of operators	Years	53.3	51.9	53.6	52.4	52.7
Nonfarm income	Dollars	2,405	2,204	2,302	1,757	2,173
Worked off-farm	Days	103	84	88	91	90
Sons over 10 years of age	Number	1.78	1.88	1.38	1.67	1.67
Daughters over 10 years of age	Number	1.32	1.40	1.43	1.45	1.41
Available operator time	Man-hours	2,463	2,645	2,651	2,578	2,601
Family labor per farm	Man-hours	1,867	1,515	1,539	1,859	1,656

Family labor was an important part of the total farm labor supply. Family labor provided an average of 1,656 man-hour equivalents or about 39 percent of the unhired farm labor. In most cases the majority of the family labor was provided by the farmers sons, but in many cases wives and daughters also helped on the farms. The size of family was about the same in all areas, however, the availability of family labor was the highest in areas I and IV.

Farm Size

The average size of farm by type and economic area is shown in table 30. Farm size varies from a high of 830 acres per farm in economic area I to a low 246 acres per farm in economic area II. The average size of farm for the basin was 550 acres.

The variation in farm sizes by type of farms is also shown in table 30. As a rule, farms in economic area IV were larger than in other areas. The extremely large size of range sheep operations in economic area I increases the weighted average size of farm in that area. Care is required in using these figures to indicate farm size because many factors are necessary to show the actual size of a farming operation. Some of the factors important to relative size are number of livestock, irrigated acreage, crop yields and crops grown. These figures only indicate total acres per farm.

Table 30.- Average size of farm by type of farm and economic area, Sevier River Basin, 1962

Type of farm	Economic area II	II	III	IV	Sevier River basin
			Acres		
Beef feeder	-----	155	-----	347	213
Crop	-----	140	131	426	288
Dairy	168	165	211	165	179
Farm beef	------	145	597	-----	458
Farm flock sheep	-----	142	-----	120	135
General	201	378	249	467	306
Lamb feeder	-----	206	-----	-----	206
Range beef	431	461	605	2,242	878
Range sheep	5,527	1,425	1,994	-----	2,766
Small	70	48	91	128	88
All farms	830	246	621	689	550

Land Use

Type of Use

The farm survey included 174,204 acres of land in the Sevier River Basin (table 31). Land use distribution within the basin included 17.1 percent irrigated cropland, 4.7 percent dry cropland, 2.3 percent native meadow, 9.6 percent permanent pasture, 64.8 percent range, and other uses 1.5 percent. Farmers owned 71.8 percent of the land they operated and rented the remaining 28.2 percent. The rental percentage was highest for range and lowest for permanent pasture. Harvested and total acreages by land use

per farm are shown in table 32. Crops and forage was harvested from 90.1 percent of the area within farms. Idle cropland and crop failures included 15 percent of the irrigated cropland and 75.5 percent of the dry cropland. The average farm included 549.5 acres of land from which crops or forage were harvested on 495.2 acres. About 24 percent of the land in farms was irrigated.

Table 31.- Agricultural land use by tenure on study farms in Sevier River Basin, 1962

Land use	Owned	Rented	Total
	Acres	Acres	Acres
Cropland	32,009	5,870	37,879
Irrigated	24,505	5,240	29,745
Dryland	7,504	630	8,134
Native meadow	3,328	717	4,045
Permanent pasture	15,478	1,358	16,836
Irrigated	7,080	862	7,942
Dryland	8,398	496	8,894
Range	72,214	40,628	112,842
Other	2,108	494	2,602
Irrigated	68	37	105
Dryland	2,040	457	2,497
Total	125,137	49,067	174,204

Table 32.- Harvested and idle acreage per study farm, Sevier River Basin, 1962

Land use	Harvested	Idle or not harvested	Total
	Acres	Acres	Acres
Cropland	86.0	33.5	119.5
Irrigated	79.7	14.1	93.8
Dryland	6.3	19.4	25.7
Native meadow	12.6	.2	12.8
Permanent pasture	50.7	2.4	53.1
Range	345.9	10.0	355.9
Other	-----	8.2	8.2
Total	495.2	54.3	549.5

The farm survey included 45,621 acres of land in economic area I (table 33). Land use distribution within the area included 7.9 percent irrigated cropland, .8 percent dry cropland, 2.4 percent native meadow, 7.8 percent permanent pasture, 80 percent range, and other uses 1.1 percent. Farmers owned 55.4 percent of the land they operated and rented the remaining 44.6 percent. The rental percentage was highest for range and lowest for other land. Harvested and total acreages by land use per farm are shown in table 34. Crops and forage were harvested from 96.7 percent of the area within farms. Idle cropland and crop failures included 14 percent of the irrigated cropland. The average farm included 829.5 acres of land from which crops or forage was harvested on 802.3 acres. About 14 percent of the land in farms was irrigated.

Table 33.- Agricultural land use by tenure on study farms in economic area I, Sevier River Basin, 1962

Land use	Owned	Rented	Total
	Acres	Acres	Acres
Cropland	3,317	641	3,958
Irrigated	2,972	641	3,613
Dryland	345	-------	345
Native meadow	906	198	1,104
Permanent pasture	3,283	259	3,542
Irrigated	1,417	184	1,601
Dryland	1,866	75	1,941
Range	17,285	19,232	36,517
Other	470	30	500
Irrigated	19	-------	19
Dryland	451	30	481
Total	25,261	20,360	45,621

Table 34.- Harvested and idle acreage per study farm in economic area I, Sevier River Basin, 1962

Land use	Harvested	Idle or not harvested	Total
	Acres	Acres	Acres
Cropland	56.8	15.2	72.0
Irrigated	56.5	9.2	65.7
Dryland	.3	6.0	6.3
Native meadow	19.0	1.1	20.1
Permanent pasture	64.4	-------	64.4
Range	662.1	1.8	663.9
Other	-------	9.1	9.1
Total	802.3	27.2	829.5

The farm survey included 25,309 acres of land in economic area II (table 35). Land use distribution within the area included 39.5 percent irrigated cropland, .9 percent dry cropland, 1.3 percent native meadow, 20.2 percent permanent pasture, 34.2 percent range, and other uses 3.9 percent. Farmers owned 61.7 percent of the land they operated and rented the remaining 38.3 percent. The rental percentage was the highest for range and the lowest for native meadows. Harvested and total acreages by land use per farm are shown in table 36. Crops and forage was harvested from 88 percent of the area within farms. Idle cropland and crop failures included 13.4 percent of the irrigated cropland. The average farm included 245.7 acres of land from which crops or forage was harvested on 216.1 acres. About 43 percent of the land in farms was irrigated.

Table 35.- Agricultural land use by tenure on study farms in economic area II, Sevier River Basin, 1962

Land use	Owned	Rented	Total
	Acres	Acres	Acres
Cropland	7,462	2,769	10,231
Irrigated	7,339	2,657	9,996
Dryland	123	112	235
Native meadow	326	------	326
Permanent pasture	4,585	534	5,119
Irrigated	1,614	204	1,818
Dryland	2,971	330	3,301
Range	2,450	6,208	8,658
Other	780	195	975
Irrigated	------	------	------
Dryland	780	195	975
Total	15,603	9,706	25,309

Table 36.- Harvested and idle acreage per study farm in economic area II, Sevier River Basin, 1962

Land use	Harvested	Idle or not harvested	Total
	Acres	Acres	Acres
Cropland	84.1	15.2	99.3
Irrigated	84.0	13.0	97.0
Dryland	.1	2.2	2.3
Native meadow	3.2	-------	3.2
Permanent pasture	49.4	.3	49.7
Range	79.4	4.7	84.1
Other	-------	9.4	9.4
Total	216.1	29.6	245.7

The farm survey included 57,103 acres of land in economic area III (table 37). Land use distribution within the area included 11.8 percent irrigated cropland, 1.9 percent dry cropland, 4.6 percent native meadow, 6.2 percent permanent pasture, 75.2 percent range, and other uses .3 percent. Farmers owned 74.4 percent of the land they operated and rented the remaining 25.6 percent. The rental percentage was the highest for range and the lowest for permanent pasture. Harvested and total acreages by land use per farm are shown in table 38. Crops and forage was harvested from 95.5 percent of the area within farms. Idle cropland and crop failures included 9.3 percent of the irrigated cropland. The average farm included 620.7 acres of land from which crops and forage were harvested on 593 acres. About 21 percent of the land in farms was irrigated.

Table 37.- Agricultural land use by tenure on study farms in economic area III, Sevier River Basin, 1962

Land use	Owned	Rented	Total
	Acres	Acres	Acres
Cropland	6,874	938	7,812
Irrigated	5,842	891	6,733
Dryland	1,032	47	1,079
Native meadow	2,096	519	2,615
Permanent pasture	3,117	420	3,537
Irrigated	2,161	329	2,490
Dryland	956	91	1,047
Range	30,243	12,728	42,971
Other	129	39	168
Irrigated	49	37	86
Dryland	80	2	82
Total	42,459	14,644	57,103

Table 38.- Harvested and idle acreage per study farm in economic area III, Sevier River Basin, 1962

Land use	Harvested	Idle or not harvested	Total
	Acres	Acres	Acres
Cropland	68.7	16.2	84.9
Irrigated	66.4	6.8	73.2
Dryland	2.3	9.4	11.7
Native meadow	28.4	-------	28.4
Permanent pasture	38.1	.3	38.4
Range	457.8	9.3	467.1
Other	-------	1.9	1.9
Total	593.0	27.7	620.7

The farm survey included 46,171 acres of land in economic area IV (table 39). Land use distribution within the area included 20.4 percent irrigated cropland, 14 percent dry cropland, 10 percent permanent pasture, 53.5 percent range, and other uses 2.1 percent. Farmers owned 90.6 percent of the land they operated and rented the remaining 9.4 percent. Harvested and total acreages by land use per farm are shown in table 40. Crops and forage was harvested from 78 percent of the area within farms. Idle cropland and crop failures included 21.3 percent of the irrigated cropland and 72.9 percent of the dry cropland. The average farm included 689.1 acres of land from which crops and forage were harvested on 537.8 acres. About 25 percent of the land in farms was irrigated.

Table 39.- Agricultural land use by tenure on study farms in economic area IV, Sevier River Basin, 1962

Land use	Owned	Rented	Total
	Acres	Acres	Acres
Cropland	14,356	1,522	15,878
Irrigated	8,352	1,051	9,403
Dryland	6,004	471	6,475
Native meadow	-----	-----	-----
Permanent pasture	4,493	145	4,638
Irrigated	1,888	145	2,033
Dryland	2,605	-----	2,605
Range	22,236	2,460	24,696
Other	729	230	959
Irrigated	-----	-----	-----
Dryland	729	230	959
Total	41,814	4,357	46,171

Table 40.- Harvested and idle acreage per study farm in economic area IV, Sevier River Basin, 1962

Land use	Harvested	Idle or not harvested	Total
	Acres	Acres	Acres
Cropland	136.5	100.4	237.0
Irrigated	110.4	29.9	140.3
Dryland	26.2	70.5	96.7
Native meadow	------	------	------
Permanent pasture	58.8	10.4	69.2
Range	342.4	26.1	368.5
Other	------	14.4	14.4
Total	537.8	151.3	689.1

Irrigated Acreage

The amount of irrigated land per farm by type of farm and economic areas is shown in table 41. The irrigated land per farm varies from a high of 171 acres in economic area IV to a low of 115 acres per farm in economic area I. The average for the basin is 132 acres per farm. The average irrigated acreage per farm gradually increases from a low at the headwaters of the Sevier River Basin to a high at the lower end of the basin.

The proportion irrigated cropland is to total irrigated land in farms varies considerably within the basin by economic areas. For example, irrigated cropland was only 43.6 percent of the irrigated land in economic area I and 67 percent in economic area IV. Comparable figures for economic areas II and III are 64.7 percent and 52.3 percent, respectively. The proportion for the basin was 58.8 percent. These figures point up the wide variation in climatic and soil conditions in the basin which in turn influence types of farming operations and livestock enterprises.

The relationship of the irrigated acreage and the total land resource is also important in influencing farm types within areas of the basin. The high percentage of nonirrigated land (76 percent) in farms in the basin reflects a need on the part of operators to be able to harvest the forage from these lands. The proportion irrigated land is to total land in farms shows economic area I with 13.9 percent, economic area II 48.0 percent, economic area III 20.8 percent, and economic area IV 24.8 percent. Dry cropland is also a factor in area IV. Dry cropland in this area accounted for 14 percent of acreage in farms. The relationship of irrigated land to total land in farms by types of farms is as follows:

Type	Percent	Type	Percent
Beef feeding	79	General	42
Crop	46	Lamb feeding	66
Dairy	71	Range beef	20
Farm beef	43	Range sheep	6
Farm flock sheep	53	Small	40

Table 41.- Irrigated land per farm by type of farm and economic area, Sevier River Basin, 1962

Type of farm	Economic area I	II	III	IV	Sevier River Basin
			Acres		
Beef feeder	-----	119	-----	287	169
Crop	-----	86	113	162	131
Dairy	119	128	133	119	127
Farm beef	-----	92	246	-----	199
Farm flock sheep	-----	58	-----	97	71
General	118	119	142	132	129
Lamb feeder	-----	135	-----	-----	135
Range beef	111	181	124	305	178
Range sheep	200	71	150	-----	155
Small	41	34	27	43	35
All farms	115	118	129	171	132

Land Values and Rental Arrangements

Farmers estimated values of land and water without buildings are shown in table 42. Irrigated cropland value and cash rental rates are considerably higher in economic area II than other areas. Other types of land except irrigated permanent pasture and rangeland are also valued higher in this area. Irrigated permanent pasture and rangeland values are the highest in economic area I. A more detailed and comprehensive study would need to be made in order to properly evaluate the variations in land values between areas. Cash rental values given by farmers do not directly coincide with estimated market values of cropland or rangeland.

Farmers estimates of the most efficient size of irrigated farm are also given in table 42. These estimates are for acres of irrigated land per farm.

Table 42.- Estimated market value per acre of land and water without buildings and rental arrangements by economic area, Sevier River Basin, 1962

Type of land or crop	Unit	Economic area I	II	III	IV	Sevier River Basin
Value per acre:						
Irrigated cropland	Dollars	258	349	222	260	278
Irrigated permanent pasture	Dollars	264	255	215	229	239
Dry cropland	Dollars	30	68	39	45	43
Dry pasture	Dollars	28	55	33	18	33
Rangeland	Dollars	21	9	17	14	16
Rental arrangements:						
Landlord crop share:						
Small grain	Percent	50	49	50	50	
Beets	Percent	-----	25	-----	-----	
Alfalfa	Percent	50	49	50	50	
Cash rental:						
Cropland	Dollars	15.50	21.70	9.00	1/4.70	
Dryland (range)	Dollars	-----	.03	.05	.04	
Estimate of most efficient size of irrigated farm	Acres	200	150	150	300	

1/ Represents rental value of farmland without water.

Production Rates

Crop Production

Crop acreage and yields are shown by economic areas in tables 43 and 44. Acreage figures indicate the average acreage of different crops per farm in each area. Yields are weighted average yield for each economic area. The normal or the last five-year average yield is also given for each crop. The quantity sold and average price received are also reported on a per farm basis.

Table 43.- Acreage of major crops per study farm by economic area, Sevier River Basin, 1962

Economic area	Crop	Farmers reporting	1962 Planted	1962 Harvested	Last 5 years
		Number	Acres	Acres	Acres
I	Alfalfa	55	43.5	42.0	45.2
I	Permanent pasture	32	33.2	33.2	11.1
I	Meadow hay	15	12.3	11.2	8.7
I	Barley	29	7.8	7.3	7.2
I	Corn silage	3	.5	.5	.9
II	Alfalfa	103	52.3	51.0	50.4
II	Permanent pasture	38	18.5	18.5	6.7
II	Meadow hay	3	1.2	1.2	1.1
II	Barley	81	16.9	16.9	17.1
II	Corn silage	44	4.9	4.9	4.8
II	Rotation pasture	6	1.0	1.0	.2
II	Wheat	12	1.1	1.1	1.1
II	Sugar beets	19	2.9	2.9	3.0
III	Alfalfa	92	44.7	42.7	42.2
III	Permanent pasture	65	41.8	41.8	21.5
III	Meadow hay	34	10.9	10.9	9.7
III	Barley	62	11.6	11.2	11.3
III	Corn silage	5	1.0	1.0	.9
III	Rotation pasture	5	.9	.9	.1
III	Wheat	19	2.3	2.3	2.5
IV	Alfalfa (2 or more cuttings)	66	80.8	29.2	27.7
IV	Alfalfa (1 cutting + seed)	30	-----	38.3	37.3
IV	Alfalfa seed (2nd crop seed)	30	-----	37.1	38.7
IV	Alfalfa seed only	7	-----	9.0	10.2
IV	Permanent pasture	11	14.8	14.8	2.7
IV	Barley	38	14.7	14.7	14.6
IV	Corn silage	13	2.6	2.4	2.1
IV	Rotation pasture	6	1.4	1.4	-----
IV	Wheat	14	5.1	5.1	3.9
Basin	Alfalfa	316	54.7	42.4	42.0
Basin	Alfalfa seed	37	-----	9.8	10.3
Basin	Permanent pasture	147	27.0	27.0	10.3
Basin	Meadow hay	52	5.7	5.5	4.6
Basin	Barley	210	13.4	13.2	13.4
Basin	Corn silage	65	2.5	2.4	2.3
Basin	Rotation pasture	16	1.0	1.0	.1
Basin	Wheat	45	2.1	2.1	1.9
Basin	Sugar beets	19	.9	.9	1.0

Table 44.- Crop yields and sales per study farm by economic area, Sevier River Basin, 1962

Economic area	Crop	Farms reporting	Unit	Yield 1962	Yield Last 5 years	Sales Quantity	Sales Price
		Number					Dollars
I	Alfalfa	55	Ton	2.7	3.1	8.1	20.35
I	Permanent pasture	33	AUM	3.4	3.8	5.5	4.70
I	Meadow hay	15	Ton	1.9	1.6	2.5	20.30
I	Barley	29	Bu.	47.0	51.0	4.0	1.10
I	Corn silage	3	Ton	10.0	15.3	-------	-----
II	Alfalfa	103	Ton	4.2	4.2	19.7	19.53
II	Permanent pasture	38	AUM	3.3	3.9	-------	-----
II	Meadow hay	3	Ton	1.8	1.9	-------	-----
II	Barley	81	Bu.	74.0	68.0	116.0	1.02
II	Corn silage	44	Ton	15.7	17.3	1.9	6.00
II	Rotation pasture	6	AUM	5.5	5.0	-------	-----
II	Wheat	12	Bu.	63.6	60.1	18.3	1.80
II	Sugar beets	19	Ton	17.5	15.8	48.0	14.80
III	Alfalfa	92	Ton	3.0	2.9	14.2	20.27
III	Permanent pasture	65	AUM	3.3	3.3	.3	4.60
III	Meadow hay	34	Ton	1.5	1.4	.1	12.00
III	Barley	62	Bu.	55.0	56.0	40.0	1.07
III	Corn silage	5	Ton	13.0	14.9	-------	-----
III	Rotation pasture	4	AUM	5.4	5.4	-------	-----
III	Wheat	19	Bu.	36.9	34.8	35.5	1.82
IV	Alfalfa (2 or more cuttings)	66	Ton	3.9	4.2	30.5	18.69
IV	Alfalfa (1 cutting + seed)	30	Ton	1.2	1.2	-------	-----
IV	Alfalfa Seed (2nd crop seed)	30	Lbs.	196.5	273.0	4,327.5	.43
IV	Alfalfa seed only	7	Lbs.	243.9	404.7	2,204.5	.44
IV	Permanent pasture	11	AUM	7.0	4.1	-------	-----
IV	Barley	38	Bu.	62.0	62.0	128.0	1.04
IV	Corn silage	13	Ton	16.7	20.8	2.7	7.00
IV	Rotation pasture	6	AUM	2.6	-----	-------	-----
IV	Wheat	14	Bu.	45.7	54.8	170.5	1.84
Basin	Alfalfa	316	Ton	3.5	3.6	14.6	19.66
Basin	Alfalfa seed	37	Lbs.	159.0	304.0	1,380.6	.43
Basin	Permanent pasture	147	AUM	3.4	3.5	1.1	4.70
Basin	Meadow hay	52	Ton	1.7	1.5	.5	20.00
Basin	Barley	210	Bu.	65.0	62.0	77.0	1.04
Basin	Corn silage	65	Ton	15.6	17.7	1.2	6.50
Basin	Rotation pasture	16	AUM	3.9	5.2	-------	-----
Basin	Wheat	45	Bu.	45.6	47.7	52.3	1.82
Basin	Sugar beets	19	Ton	17.5	15.8	15.6	14.80

Figures indicate that the survey year of 1962 was about a normal year, except for alfalfa seed production. An early frost reduced alfalfa seed yields considerably in 1962. Survey data indicates that yields in the basin were above average for meadow hay, barley, and sugar beets. Yields are below average for alfalfa hay, alfalfa seed, pasture, corn for silage, and wheat. Variations from the above observations occur within each economic area, but 1962 crop yields in general were near normal, except maybe a little bit below normal in area IV.

Table 45 shows the percentage distribution of individual crops by economic areas and for the basin. Figures indicate that alfalfa was the leading crop grown in the basin and occupies 51 percent of the crop area. Permanent pasture and barley were the next covering 25 percent and 13 percent of the crop area, respectively. Meadow hay covered 5 percent of the crop area. These figures are based on planted acreage and would be a little different if figured on harvested acreage.

The model crop rotation by economic areas, is shown in table 46. Figures suggest that alfalfa is left in the rotation longer in areas III and IV than in other areas. Small grains were used in the rotation for 2 years in all areas. In area II it was a usual practice to have 2 years of row crops in the rotation on farms raising row crops.

Table 45.- Distribution of crops by economic areas, Sevier River Basin, 1962

Crop	Economic areas				Basin
	I	II	III	IV	
			Percent		
Alfalfa	44.5	53.0	39.6	67.6	51.0
Permanent pasture	34.0	18.7	36.9	12.4	25.2
Meadow hay	12.6	1.2	9.6	-----	5.3
Barley	8.0	17.1	10.2	12.3	12.5
Corn silage	.5	5.0	.9	2.2	2.3
Rotation pasture	.4	1.0	.8	1.2	.9
Wheat	-----	1.1	2.0	4.3	2.0
Sugar beets	-----	2.9	-----	-----	.8
Total	100.0	100.0	100.0	100.0	100.0

Table 46.- Modal crop rotation by economic areas, Sevier River Basin, 1962

Item	Unit	Economic areas			
		I	II	III	IV
Alfalfa	Years	5	5	7	8
Small grains	Years	2	2	2	2
Row crops	Years	-	2	-	2

Livestock Production

Numbers of livestock were obtained as of January 1, 1963 (tables 47-51). Findings indicate that farmers have a tendency to diversify their livestock holdings although averages overemphasize the amount of diversification within farm types. Likely small averages of a given kind of livestock indicate that few farmers in the group have diversified their holdings, while larger averages probably indicate there is a general practice for farmers in the group to include this type of livestock in their operation.

Wide variations in livestock production rates are apparent between economic areas (table 52). These cases can partly be explained by variations in types of operations between areas. Grade A dairy operations are located in areas II and III which helps explain higher butterfat production per cow in these areas. Range sheep operations are concentrated in areas I and III and farm flock of sheep are located in areas II and IV. The location of these types of operations likely accounts for differences in the percent of lamb crop between these areas.

Selected Inputs

Labor and Machine Requirements for Crops

Labor and machine hours required to produce and harvest crops are shown in table 53 by economic areas and for the Sevier River Basin. These data are weighted averages of time per acre for each crop. In some instances data are incomplete; these cases have been footnoted with appropriate explanations.

Only normal field repairs are included in man hours. In cases where work was custom hired and data were not available, figures are shown without acreage on which work was custom hired. Hauling and spreading manure was charged to the crop to which it was applied. Crops that are not grown in two or more economic areas were not included in basin totals.

Detailed summaries by operations are available in a separate report titled "Labor and Machinery Inputs and Practices and Irrigation Water Use and Practices for Crop Production, Sevier River Basin, Utah." The report presents data on size of equipment used, acreage covered, number of times over for each operation, and weighted average man and machine hours needed per operation by crops and economic areas.

Table 47.- Livestock per farm by type of farm, Sevier River Basin, January 1, 1963

Kind of livestock	Beef feeders	Crop	Dairy	Farm beef	Farm flock sheep	General	Lamb feeder	Range beef	Range sheep	Small farm
					Number					
Farms	20	33	66	13	9	45	7	58	26	40
Dairy										
Cows	.5	.8	23.4	.3	1.2	6.3	.7	.8	.2	1.5
Heifers 18-30 mo.	-----	.2	6.5	-----	.3	2.9	.1	.1	-----	.7
Heifers under 18 mo.	6.4	.2	7.4	-----	.3	4.2	2.3	.1	-----	.1
Steers	.4	.2	5.8	-----	.4	1.7	.6	.2	.1	.2
Calves	.1	.5	7.4	-----	1.0	1.8	.4	.5	-----	.6
Total	7.4	1.9	50.5	.3	3.2	16.9	4.1	1.7	.3	3.1
Beef										
Cows	3.0	2.2	1.3	50.0	.9	17.9	-----	61.4	10.7	1.3
Replacement heifers	.1	.2	.2	8.6	.2	3.1	-----	9.8	2.7	.3
Feeders	188.5	.1	1.5	22.8	-----	12.4	4.3	24.6	6.5	2.2
Calves	3.9	.1	1.5	7.0	-----	7.1	21.4	13.3	1.2	.8
Bulls	.1	.1	.1	1.8	-----	.6	-----	4.4	.3	.1
Total	195.6	2.7	4.6	90.2	1.1	41.1	25.7	113.5	21.4	4.7
Sheep										
Ewes	-----	1.1	6.0	5.4	94.2	41.3	41.1	11.6	783.3	2.7
Replacements	-----	-----	.4	1.2	13.9	3.1	9.3	1.9	98.9	.4
Lambs	-----	.3	1.4	-----	14.9	16.3	1,121.4	7.9	100.6	2.6
Bucks	-----	-----	-----	-----	.5	.6	-----	.3	14.3	-----
Total	-----	1.4	7.8	6.6	123.5	61.3	1,171.8	21.7	997.1	5.7

Table 48.- Livestock per farm by type of farm, economic area I, January 1, 1963

Kind of livestock	Dairy	General	Range beef	Range sheep	Small
			Number		
Farms	12	13	17	6	7
Dairy					
Cows	18.5	7.2	1.4	.3	4.0
Heifers 18-30 mo.	5.3	2.2	.3	-----	2.4
Heifers under 18 mo.	6.3	1.1	.2	-----	-----
Steers	5.2	2.1	.6	.3	.7
Calves	7.9	2.9	1.4	-----	2.0
Total	43.2	15.5	3.9	.6	9.1
Beef					
Cows	2.3	15.2	49.6	28.7	1.0
Replacement feeders	.8	2.8	8.8	6.5	-----
Feeders	-----	6.2	6.4	.8	1.6
Calves	1.3	2.8	7.7	2.5	1.1
Bulls	.2	.6	1.3	.8	-----
Total	4.6	27.6	73.8	39.3	3.7
Sheep					
Ewes	1.3	32.9	20.1	1,132.2	.2
Replacements	-----	3.7	4.4	71.7	-----
Lambs	1.3	5.4	26.8	88.3	-----
Bucks	-----	.5	.9	46.2	.2
Total	2.6	42.5	52.2	1,336.4	.4

Table 49.- Livestock per farm by type of farm, economic area II, January 1, 1963

Kind of livestock	Beef feeder	Crop	Dairy	Farm beef	Farm flock sheep	General	Lamb feeders	Range beef	Range sheep	Small
					Number					
Farms	14	9	27	4	6	8	7	18	2	8
Dairy										
Cows	.1	.4	27.9	-----	1.2	6.6	.7	.2	-----	1.4
Heifers 18-30 mo.	-----	.6	8.7	-----	.5	2.6	.1	-----	-----	.8
Heifers under 18 mo.	.2	.1	7.9	-----	.5	16.1	2.3	-----	-----	-----
Steers	-----	.1	8.3	-----	.7	.4	.6	-----	-----	.1
Calves	.1	-----	7.4	-----	.7	-----	.4	.2	-----	.3
Total	.4	1.2	60.2	-----	3.6	25.7	4.1	.4	-----	2.6
Beef										
Cows	3.9	.6	1.6	30.8	1.3	20.4	-----	56.6	-----	1.8
Replacement heifers	; .2	-----	-----	3.5	.3	4.1	-----	12.9	-----	-----
Feeders	74.4	-----	3.6	19.5	-----	37.0	42.9	25.7	-----	5.9
Calves	5.2	-----	1.9	18.5	-----	27.0	21.4	7.9	-----	1.5
Bulls	.1	-----	-----	1.5	-----	1.1	-----	9.2	-----	-----
Total	83.8	.6	7.1	73.8	1.6	89.6	64.3	112.3	-----	9.2
Sheep										
Ewes	-----	3.9	10.3	-----	85.7	53.8	41.1	5.6	462.5	1.5
Replacements	-----	-----	.9	-----	13.5	8.8	9.3	1.0	77.5	-----
Lambs	-----	1.0	-----	-----	17.3	76.3	1,121.4	-----	-----	-----
Bucks	-----	-----	-----	-----	.8	2.5	-----	-----	-----	-----
Total	-----	5.5	11.2	-----	117.3	141.4	1,171.8	6.6	540.0	1.5

Table 50.- Livestock per farm by type of farm, economic area III, January 1, 1963

Kind of livestock	Crop	Dairy	Farm beef	General	Range beef	Range sheep	Small
				Number			
Farms	7	19	9	14	10	18	15
Dairy							
Cows	-----	23.3	.4	5.4	.4	.2	.5
Heifers 18-30 mo.	-----	6.4	-----	2.1	-----	-----	.1
Heifers under 18 mo.	-----	8.7	-----	1.6	-----	-----	-----
Steers	-----	4.0	-----	.5	-----	-----	-----
Calves	-----	8.9	-----	1.7	-----	-----	.4
Total	-----	51.3	.4	11.3	.4	.2	1.0
Beef							
Cows	-----	.8	58.6	18.6	55.8	5.9	1.7
Replacement heifers	-----	.3	10.9	2.6	6.8	1.7	.6
Feeders	-----	.3	24.2	9.4	34.9	9.1	.7
Calves	-----	1.8	1.9	2.5	1.7	.8	-----
Bulls	-----	.2	2.0	.4	1.6	.2	.1
Total	-----	3.4	97.6	33.5	100.8	17.7	3.1
Sheep							
Ewes	-----	5.5	7.8	42.9	2.5	702.6	5.9
Replacements	-----	.1	1.8	4.9	1.0	110.4	1.1
Lambs	-----	4.1	-----	1.1	-----	115.8	7.0
Bucks	-----	-----	-----	.1	-----	6.0	-----
Total	-----	9.7	9.6	49.0	3.5	934.8	14.0

Table 51.- Livestock per farm by type of farm, economic area IV, January 1, 1963

Kind of livestock	Beef feeder	Crop	Dairy	Farm flock sheep	General	Range beef	Small
				Number			
Farms	6	17	8	3	10	13	10
Dairy							
Cows	1.5	1.4	15.9	1.3	6.0	.9	1.2
Heifers 18-30 mo.	-----	.1	1.4	-----	5.4	-----	.3
Heifers under 18 mo.	20.8	.3	4.4	-----	2.4	.2	.2
Steers	1.2	.4	3.1	-----	3.9	-----	-----
Calves	-----	1.1	2.9	1.7	1.8	.2	-----
Total	23.5	3.3	27.7	3.0	19.5	1.3	1.7
Beef							
Cows	.8	3.9	-----	-----	18.3	87.7	.7
Replacement heifers	-----	.4	-----	-----	3.0	8.9	.2
Feeder	454.2	.2	-----	-----	5.0	39.0	1.7
Calves	.8	.2	-----	-----	3.2	29.2	1.2
Bulls	-----	.2	-----	-----	.6	3.9	-----
Total	455.8	4.9	-----	-----	30.1	168.7	3.8
Sheep							
Ewes	-----	-----	-----	111.3	40.0	2.7	.4
Replacement	-----	-----	-----	11.3	7.0	.8	-----
Lambs	-----	-----	-----	10.0	4.0	-----	-----
Total	-----	-----	-----	132.6	51.0	3.5	.4

Table 52.- Livestock production rates and death losses, by economic area, Sevier River Basin, 1962

Item	Economic area I	II	III	IV
		Pounds		
Butterfat per cow	312	335	385	283
Wool per head	11.8	11.1	11.0	11.5
		Percent		
Calf crop:				
Dairy cows	93.9	94.5	95.1	98.6
Beef cows	78.6	89.1	87.9	80.0
Lamb crop:	96.6	129.9	106.3	130.8
Death loss:				
Dairy	7.4	10.9	5.6	5.9
Beef	5.7	7.1	5.4	2.4
Sheep	7.7	5.0	6.3	6.0

Table 53.- Labor and machine hours used per acre to produce and harvest different crops by economic areas, Sevier River Basin, 1962

Economic area	Crop	Preharvest		Irrigation	Harvest		Total crop	
		Man	Machine	Man	Man	Machine	Man	Machine
		Hours						
I	Alfalfa	.4	.4	4.0	6.5	4.6	10.9	5.0
I	Meadow hay	.1	.1	1.0	3.0	1.9	4.1	2.0
I	Barley	4.9	4.8	5.1	1.5	1.5	11.5	6.3
II	Alfalfa	.9	.9	4.6	8.7	5.7	14.2	6.6
II	Barley	4.6	4.6	3.9	1.3	1.3	9.8	5.9
II	Corn silage	5.7	5.7	4.2	3.9	3.5	13.8	9.2
II	Wheat	3.8	3.4	5.3	1.1	1.1	10.2	4.5
II	Sugar beets	1/ 7.5	1/ 7.5	8.7	1/Hired	1/ Hired	1/16.2	1/ 7.5
III	Alfalfa	1.4	1.1	3.8	6.6	4.2	11.8	5.3
III	Barley	4.6	4.1	3.6	1.1	1.1	9.3	5.2
III	Corn silage	4.2	4.2	4.5	2.1	2.1	10.8	6.3
III	Wheat	3.2	3.2	2.0	1.1	1.1	6.3	4.3
IV	Alfalfa hay	.4	.4	2.5	5.8	3.6	8.7	4.0
IV	Alfalfa hay and seed	.3	.3	5.1	3.6	2.7	9.0	3.0
IV	Alfalfa seed	.5	.5	1.7	1.5	1.5	3.7	2.0
IV	Barley	3.2	3.2	1.7	1.3	1.3	6.2	4.5
IV	Corn silage	3.2	3.2	3.0	3.7	2.8	9.9	6.0
IV	Wheat	2.5	2.5	2.4	1.8	1.7	6.7	4.2
Basin	Alfalfa	1.0	.8	4.0	6.6	4.5	11.6	5.3
Basin	Barley	4.3	4.1	3.5	1.3	1.3	9.1	5.4
Basin	Corn silage	5.2	5.2	3.9	3.7	3.2	12.8	8.4
Basin	Wheat	3.1	3.0	2.9	1.4	1.4	7.4	4.4

1/ Thinning, hoeing, and harvesting times are not included because they were hired and times were not available. See custom hire rates for costs.

Fertilizer and Spray Use

The survey indicated a variety of practices in the use of both commercial fertilizer and manure between economic areas (table 54). Figures indicate that much more commercial fertilizer is used on crops in economic areas II and IV than in economic areas I and III. However, practices vary considerably. For example, about the same amount of commercial fertilizer is applied per acre of alfalfa in areas II and IV, but the amount applied per application and the percentage of the area covered each year varies widely. It seems to be a general practice to apply manure to the land that requires plowing so that the manure can be plowed under. Data collected also suggests a fairly general use of both insecticides and herbicides in the basin.

Farm Machinery

The number and age of major farm machinery are reported by areas in table 55. Of the farmers in the basin surveyed 91 percent owned tractors. The average number of tractors owned was 1.87 with an average age of 10.5 years. About half of the farmers had balers. Average age was 5 years. Sixteen percent had combines and average age was 9.4 years. Over three-fourths of the farmers owned pickup trucks and average age was 7.4 years. Forty percent of all those farmers owning pickup trucks also owned larger trucks.

Farmers in economic IV had more major equipment per farm than farmers in other areas. They had more tractors, trucks, and combines per farm than other areas. Farmers in economic area II had more balers per farm than in other areas. The average age of major equipment was significantly lower in economic area IV than other areas.

Custom Rates

Custom operation rates by economic areas are shown in table 56. Blank spaces in the table mean that either the item did not apply or data were not available.

Significant variation between areas exist in custom rates. For example, rates for combining and hauling small grains in economic area IV are considerably lower than in other areas. This variation may be partly explained by the comparatively higher number of combines in this area. Also, the higher custom plowing rates in economic area IV are due to the relatively heavier soils in the Delta area. The variation in custom swathing rates between areas in the basin can partly be explained by the availability of swathing machines in local areas.

Table 54.- Use of fertilizer, insecticides, and herbicides by economic area, Sevier River Basin, 1962

Area and crop	Available nutrients per acre covered			Portion of total acreage covered			
				Commercial fertilizer			
	P205	Nitrogen	Manure	P205	Nitrogen	Insecticide	Herbicide
	Pounds	Pounds	Percent	Percent	Percent	Percent	Percent
Economic area I							
Alfalfa	96.3	------	9.8	7.4	------	50.6	------
Small grains	1/46.0	40.0	36.8	11.8	14.2	17.3	.5
Pasture	------	45.0	------	------	3.0	------	------
Economic area II							
Alfalfa	67.8	40.0	4.8	30.4	.7	75.7	2/.4
Small grains	1/66.7	46.6	45.4	14.0	42.9	------	47.3
Pasture	180.0	63.7	.7	1.0	2.0	------	------
Sugar beets	103.3	85.1	44.6	80.5	84.9	------	------
Corn	67.2	51.0	64.1	9.7	44.8	------	74.2
Economic area III							
Alfalfa	83.4	------	12.6	16.7	------	84.0	2/.4
Small grains	------	84.9	30.0	------	7.3	4.4	30.2
Pasture	------	83.3	1.3	------	1.0	------	------
Corn	------	33.0	62.4	------	46.2	32.3	21.5
Economic area IV							
Alfalfa	126.3	------	2.6	15.5	------	82.7	2/9.0
Small grains	1/40.0	51.1	11.7	3.6	25.7	10.6	54.1
Pasture	------	------	.6	------	------	------	.9
Corn	25.2	69.9	31.0	10.3	29.3	------	56.9
Basin							
Alfalfa	87.3	40.0	6.6	19.3	.2	76.5	2/3.1
Small grains	1/60.2	50.2	31.4	7.3	26.4	5.6	40.7
Pasture	180.0	61.8	.8	.2	1.5	------	.1
Sugar beets	103.3	85.1	44.6	80.5	84.9	------	------
Corn	55.9	51.6	56.4	8.7	41.5	3.9	63.9

1/ P205 applied to young alfalfa credited to small grains.
2/ Herbicide spray used to kill alfalfa prior to plowing.

Table 55.- Number and age of major farm machinery by economic area, Sevier River Basin, 1962

Area and type of machine	Farmers reporting	Machines per farm reporting	Average age
	Percent	Number	Years
Economic area I			
Tractor	93	1.55	10.2
Baler	44	1.00	6.4
Combine	9	1.00	15.3
Truck (1 ton or less)	75	1.10	7.2
Truck (1½ ton or more)	22	1.00	5.8
Economic area II			
Tractor	91	2.02	10.2
Baler	65	1.00	4.8
Combine	17	1.00	7.4
Truck (1 ton or less)	77	1.08	7.7
Truck (1½ ton or more)	47	1.17	11.9
Economic area III			
Tractor	87	1.63	10.8
Baler	42	1.05	5.2
Combine	8	1.00	10.9
Truck (1 ton or less)	82	1.19	7.9
Truck (1½ ton or more)	38	1.31	11.3
Economic area IV			
Tractor	97	2.18	10.3
Baler	52	1.00	5.5
Combine	31	1.00	9.2
Truck (1 ton or less)	79	1.13	6.2
Truck (1½ ton or more)	48	1.19	9.9
Sevier River Basin			
Tractor	91	1.87	10.5
Baler	52	1.01	5.2
Combine	16	1.00	9.4
Truck (1 ton or less)	78	1.13	7.4
Truck (1½ ton or more)	40	1.20	10.7

Table 56.- Modal custom operation rates by economic areas, Sevier River Basin, 1962

Operation	Unit	Operator must supply	Economic area I	II	III	IV
			Dollars			
Plowing	Acre	Nothing	1/4.00	1/4.50	4.00	6.00
Drilling	Acre	Seed	-----	2.00	1.50	2/1.50
Thinning beets (hand)	Acre	Nothing	-----	15.00	-----	-----
Applying fertilizer	Acre	Fertilizer	-----	-----	-----	2/1.15
Spraying	Acre	Chemical	3/1.40	3/2.00	1.00	1.00
Swathing	Acre	Nothing	3.00	2.00	3.00	2.00
Swathing with conditioner	Acre	Nothing	-----	2.50	-----	2.50
Combining alfalfa seed	Acre	Nothing	-----	-----	-----	6.00
Harvesting small grains	Acre	Truck driver	7.50	3/8.00	7.00	3/6.00
Harvesting beets	Ton	Nothing	-----	1/2.10	-----	-----
Cutting silage	Acre	Nothing	-----	16.00	-----	-----
Baling by ton	Ton	Nothing	-----	-----	-----	4.00
Baling by bale	Bale	Nothing	.10	.10	.10	.10
Hired wage rate	Dol./hr.	Nothing	1.25	1.25	1.25	1.50

1/ Represents mean rather than mode.
2/ Represents mean of bi-modal distribution.
3/ Operator supplies nothing.

Farm Buildings

The average size and age of major farm buildings by economic area are shown in table 57. Findings indicate that one-third of the farmers in the basin have milking barns, 18 percent hay barns, 63 percent lounging sheds, and 81 percent have granaries.

Some significant variations from the basin figures exist by economic areas. A higher proportion of farmers in area I have milking barns and the average age is below the basin average age for milking barns. Climatic conditions seem to indicate a need for hay barns in economic area III and no need for these in area II. The average age for hay barns in all areas is 35 years and would suggest a trend away from building hay barns as compared to other buildings of which the average age is considerably less. The data indicate that machine sheds are less popular in economic area I than in other areas.

Table 57.- Sizes and ages of major farm buildings by economic area, Sevier River Basin, 1962

Area and kind of building	Farmers reporting	Buildings per farm reporting	Size	Age
	Percent	Number		Years
Economic area I				
Milking barn	44	1.00	5.3 cows	13.6
Hay barn	16	1.00	77.9 tons	44.3
Lounging shed	64	1.06	1,354.7 sq. ft.	16.1
Machine shed	16	1.00	925.9 sq. ft.	14.6
Granary	80	1.07	2,007.7 bu.	27.4
Economic area II				
Milking barn	34	1.00	5.0 cows	14.7
Hay barn	2	1.00	37.5 tons	45.0
Lounging shed	68	1.16	1,408.3 sq. ft.	18.9
Machine shed	26	1.11	1,218.2 sq. ft.	16.1
Granary	83	1.53	1,146.0 bu.	24.5
Economic area III				
Milking barn	28	1.04	6.5 cows	16.3
Hay barn	40	1.22	56.9 tons	32.7
Lounging shed	76	1.37	1,412.8 sq. ft.	13.6
Machine shed	32	1.14	976.9 sq. ft.	16.1
Granary	80	1.25	1,394.4 bu.	30.3
Economic area IV				
Milking barn	28	1.00	4.9 cows	17.3
Hay barn	12	1.00	99.3 tons	29.9
Lounging shed	58	1.08	1,149.8 sq. ft.	14.0
Machine shed	36	1.13	1,260.9 sq. ft.	16.0
Granary	79	1.45	1,508.0 bu.	22.7
Sevier River Basin				
Milking barn	33	1.01	5.5 cows	15.3
Hay barn	18	1.11	63.9 tons	34.6
Lounging shed	68	1.20	1,359.1 sq. ft.	15.7
Machine shed	28	1.11	1,126.4 sq. ft.	15.9
Granary	81	1.35	1,402.6 bu.	26.0